

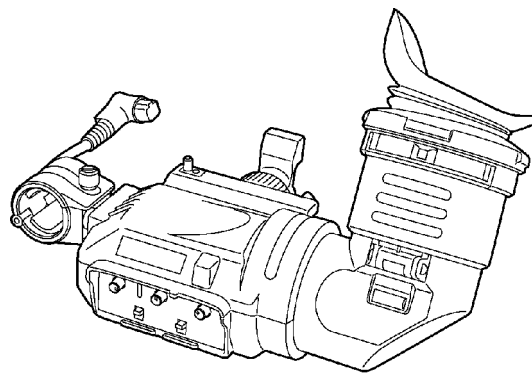
ORDER NO. BSD0109M908

D20, D21

Service Manual

1.5" Electronic View Finder

AG-VF5P/E/MC



⚠ WARNING


This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

AG-VF5P

Specifications

Power supply: DC 9 V, 12 V (supplied by camera)
Power consumption: 2 W

 indicates safety information.

Picture tube:

1.5-inch high-resolution monochrome picture tube

Horizontal resolution:

600 lines (center, typical, 4 : 3 mode)

Image system:

525 lines, 59.94 Hz

External adjustment controls:

Controls (BRIGHT, CONTRAST, PEAKING)
Switches (TALLY ON/OFF, ZEBRA ON/OFF)

Allowable temperature range:

32°F to 104°F (0°C to 40°C)

Allowable humidity range:

85% or less (no condensation)

External dimensions (W×H×D):

9 7/8"×3 1/4"×7 1/2" (250.5×81×190 mm)


Weight:

1.5158 lb (689 g)

AG-VF5E/MC

Specifications

Power supply: DC 9 V, 12 V (supplied by camera)
Power consumption: 2 W

 indicates safety information.

Picture tube:

1.5-inch high-resolution monochrome picture tube

Horizontal resolution:

600 lines (center, typical, 4 : 3 mode)

Image system:

625 lines, 50 Hz

External adjustment controls:

Controls (BRIGHT, CONTRAST, PEAKING)
Switches (TALLY ON/OFF, ZEBRA ON/OFF)

Allowable temperature range:

0°C to 40°C

Allowable humidity range:

85% or less (no condensation)

External dimensions (W×H×D):

250.5×81×190 mm

Weight:

689 g

SAFETY PRECAUTIONS

GENERAL GUIDELINES

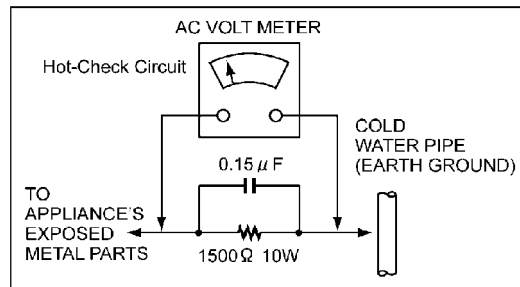
1. When servicing, observe the original lead dress. If a short / circuit is found, replace all parts which have been over-heated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc.

The resistance value must be more than 5M Ω .

Figure1



LEAKAGE CURRENT HOT CHECK (See Figure 1)

- 1. Plug the AC cord directly into the AC outlet. / Do not use an isolation transformer for this check.**
- 2. Connect a 1.5k Ω , 10W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure1.**
- 3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.**
- 4. Check each exposed metallic part, and measure the voltage at each point.**
- 5. Reverses the AC plug in the AC outlet repeat each of the above measurements.**
- 6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and checked before it is returned to the customer.**

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

- 1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. / Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.**
- 2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
- 3. Use only a grounded tip soldering iron to solder or unsolder ES devices.**
- 4. Use only an anti-static solder removal device classified as “anti-static” can generate electrical charges sufficient to damage ES devices.**
- 5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
- 6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. / (most replacement ES devices are package with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).**
- 7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed. / CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.**
- 8. Minimize bodily motions when handling unpacked replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).**

X-RADIATION

WARNING

1. The potential source of X-radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10kV without causing x-radiation.

Note :

It is important to use an accurate periodically calibrated high voltage meter.

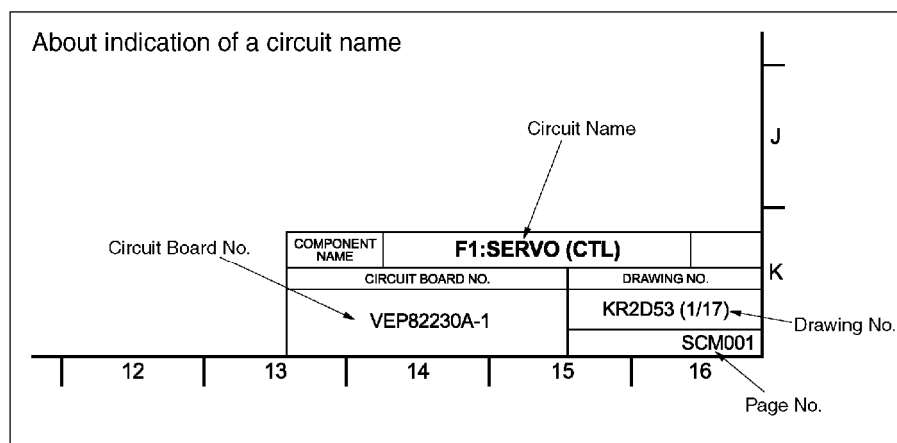
3. Measure the High Voltage. The meter (electric type) reading should indicate 2.5kV, 0.15kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an x-radiation possibility, it is essential to use the specified picture tube.

1. Disassembly Procedures

2. Electrical Adjustments

3. Block Diagrams

4. Schematic Diagrams



NOTE

BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST.

CAUTION

THE  MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. / PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. / WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

5. Circuit Board Diagrams

NOTE

BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST, SECTION 6.

CAUTION



THE  MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. / PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR SERVICE OF THE PRODUCTS.

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6. Exploded View & Replacement Parts List

NOTE:

1. Be sure to make your orders of replacement parts according to this list.
2. Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS (μ F), P= μ μ F.
3. The P.C. Board untils marked with " ■ " shown below the main assembled parts.
4. The parts marked with  on the exploded view show the electric parts.
5. **IMPORTANT SAFETY NOTICE**
Components identified with the mark  have the special characteristics for safety. When replacing any of these components, use only the same type.
6. The marking (RTL) indicates the retention time is limited for this item. / After the discontinuation of assembly in production, it will no longer be available.

NOTE:

A list of parts is stored in data form in the CD-ROM. It is located within the folder APPENDIX/PARTS. Please use as necessary.

7. PDF for Printing

The PDF documents for printing consist of several files per section. Open every section (file) through a link (blue frame) on the cover.

● **Setting of Acrobat Reader**

To view a link in a new window, follow the procedure below. When you operate the PDF documents printing, you can open a PDF file of each section while displaying the cover page. This is convenient for the PDF files in several sections.

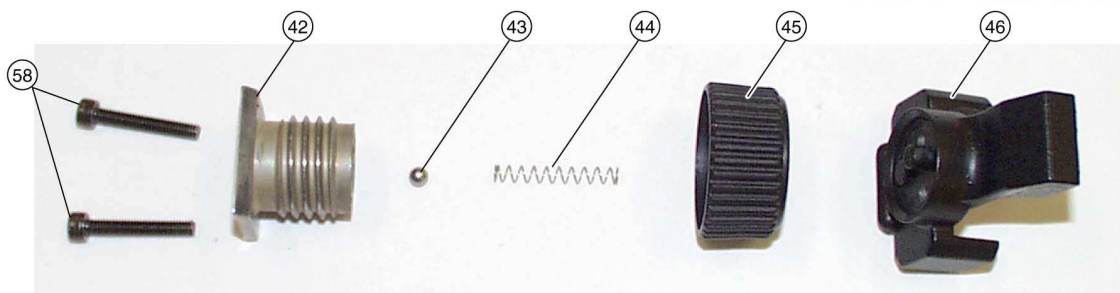
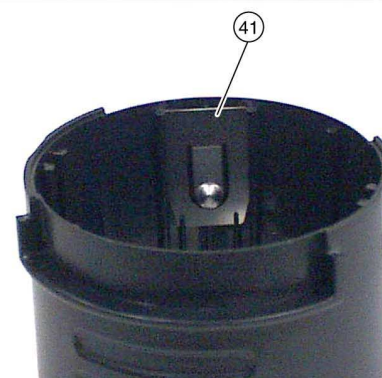
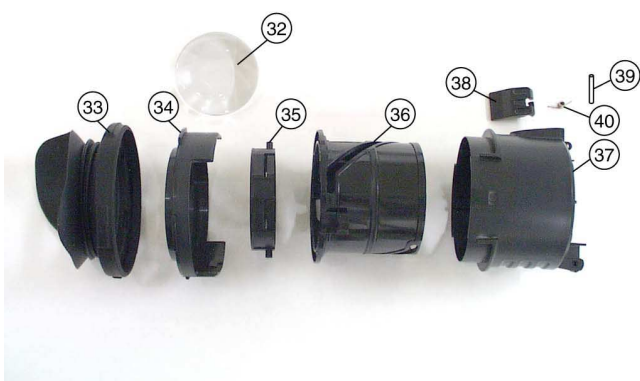
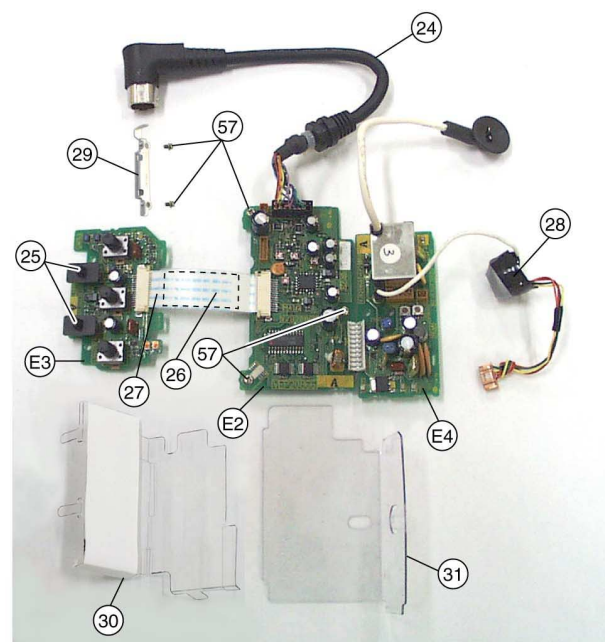
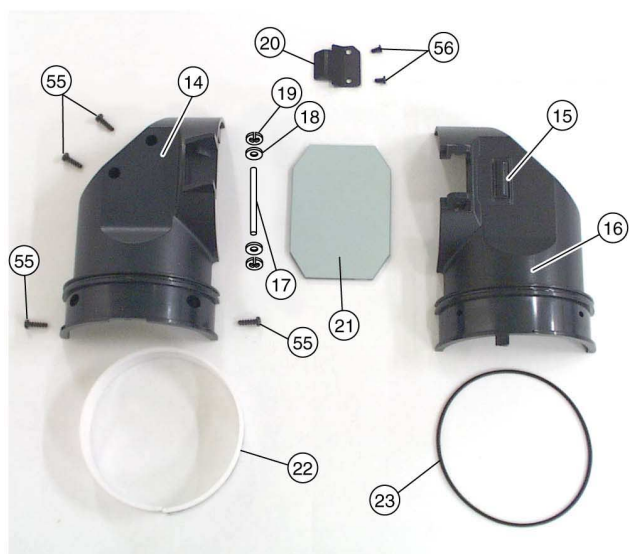
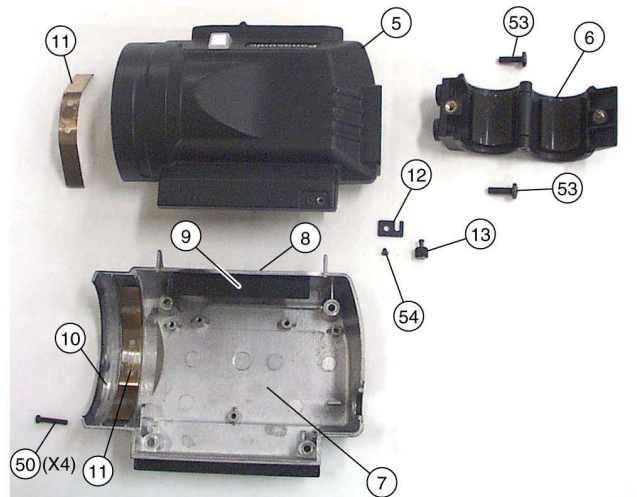
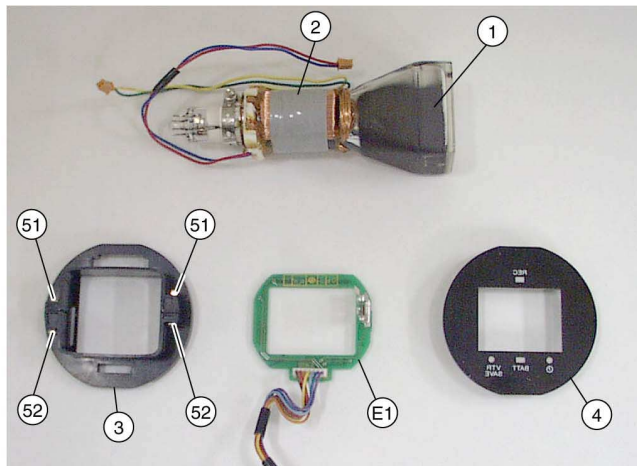
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When replacing any of these components, use only the same type.

MECHANICAL COMPONENT ASSEMBLY

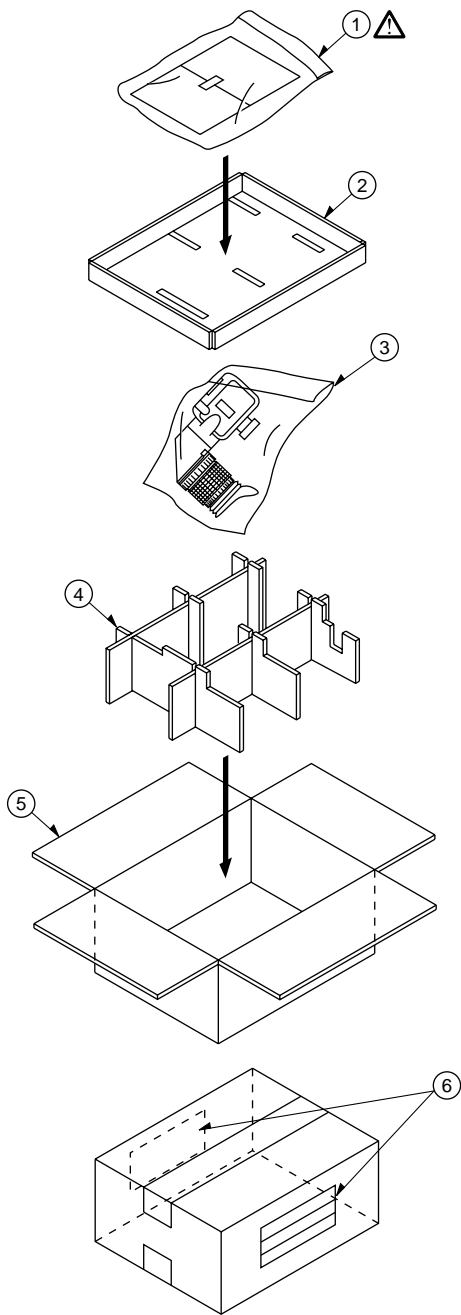
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MECHANICAL COMPONENT ASSEMBLY







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When replacing any of these components, use only the same type.

PACKING PARTS ASSEMBLY



PACKING PARTS ASSEMBLY

Components identified with the mark  have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref No.	Part No.	Part Name & Description	Pcs	Remarks	Ref No.	Part No.	Part Name & Description	Pcs	Remarks
 1	VQT9454	OPERATING INSTRUCTIONS	1	FOR AG-VF5P					
 1	VQT9455	OPERATING INSTRUCTIONS	1	FOR AG-VF5E					
 1	VQT9456	OPERATING INSTRUCTIONS	1	FOR AG-VF5MC					
2	VPN5665	PAD	1						
3	VPF0210	POLYETHYLENE BAG	1	FOR AG-VF5P					
3	VPF0676	POLYETHYLENE BAG	1	FOR AG-VF5E/MC					
4	VPN5667	CUSHION	1						
5	VPG0A97	PACKING CASE	1						
6	VQL9822	PACKING LABEL	1	FOR AG-VF5P					
6	VQL0A24	PACKING LABEL	1	FOR AG-VF5E/MC					

ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■ E1	VEP20869A	CRT MASK C.B.A.	1	(RTL)	D9004	MA3047	DIODE	1	
■ E2	VEP20866A	MAIN C.B.A.	1	(RTL)	IC9001	AN77L05M	IC	1	
■ E3	VEP20867A	FRONT C.B.A.	1	(RTL)	IC9002	TC7S04F	IC	1	C0JBAB000169
■ E4	VEP20868A	REAR C.B.A.	1	(RTL)	IC9003	AN77L08M	IC	1	
					IC9004	HA11423MP	IC	1	
					IC9005	TVHC164FT	IC	1	
					IC9006	TC7S32F	IC	1	C0JBAE000084
					IC9007	TVHC08FT	IC	1	
					IC9008	C0JBAB000163	IC	1	
					IC9009	M66311FP	IC	1	C0HBZ0000021
					J1	VJR1094	TERMINAL	1	
					L9001	VLQ0417	COIL 10UH	1	
					P9001	VJP2741A016	CONNECTOR (MALE) 16P	1	K1KA16A00139
					P9002	K4ZZ10000016	TERMINAL	1	
■ E1	VEP20869A	CRT MASK C.B.A.	1	(RTL)	P9003	ILY2PS15T2	CONNECTOR	1	
					P9004	VJS2907D015	CONNECTOR (FEMALE)	1	K1MN15B00011
					P9005	VJP2276	CONNECTOR (MALE)	1	
D9601	BR1101W330	DIODE	1	B3AAB0000043	Q9001	2SD1819A-R	TRANSISTOR	1	
D9603	AA1101W330	DIODE	1	B3ADB0000018	Q9002	2SC3624	TRANSISTOR	1	
D9605	BR1101W330	DIODE	1	B3AAB0000043	Q9004	B1ADCC000008	TRANSISTOR	1	
D9606	AA1101W330	DIODE	1	B3ADB0000018	Q9005,06	2SD1819A-R	TRANSISTOR	2	
		MISCELLANEOUS			QR9001	UN5214	TRANSISTOR-RESISTOR	1	
	VMP5140	CRT EARTH PLATE	1		QR9002	UN511L	TRANSISTOR-RESISTOR	1	
					R9001	ERJ12YJR68	M.RESISTOR CH 1/2W 0.68	1	
					R9002	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
					R9003	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
					R9004	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
■ E2	VEP20866A	MAIN C.B.A.	1	(RTL)	R9005	ERJ3GEYJ474	M.RESISTOR CH 1/16W 470K	1	
					R9006	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
					R9007	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
C9001	EEUFC1C331	E.CAPACITOR 16V 330U	1		R9008	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
C9002	ECUX1H150JCV	C.CAPACITOR CH 50V 15P	1		R9009	ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	1	
C9003	EEAFC0J121	E.CAPACITOR 6.3V 120U	1		R9010	ERJ3GEYJ100	M.RESISTOR CH 1/16W 10	1	
C9004-07	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	4		R9011	ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
C9008	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1		R9012	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
C9009	ECST1CY105	C.CAPACITOR CH 16V 1U	1		R9013	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
C9010	ECUX1E223KBV	C.CAPACITOR CH 25V 0.023U	1		R9014	ERJ3GEYJ121	M.RESISTOR CH 1/16W 120	1	
C9011	ECUX1H682KBV	C.CAPACITOR CH 50V 6800P	1		R9015	ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
C9012	ECHU1C472JB	P.CAPACITOR 16V 4700P	1		R9016	ERJ6RBD123	M.RESISTOR CH 1/10W 12K	1	
C9013	EEAFC1C560	E.CAPACITOR 16V 56U	1		R9017	ERJ6RBD472	M.RESISTOR CH 1/10W 4.7K	1	
C9014	ECST1CX106	T.CAPACITOR CH 16V 10U	1		R9018	ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
C9015	EEAFC1C560	E.CAPACITOR 16V 56U	1		R9019	ERJ6RBD822	M.RESISTOR CH 1/10W 8.2K	1	
C9016	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	1		R9020	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
C9017	ECUX1H331JCV	C.CAPACITOR CH 50V 330P	1		R9022	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
C9018	ECST1CY105	C.CAPACITOR CH 16V 1U	1		R9023	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
C9019	ECUX1C473KBV	C.CAPACITOR CH 16V 0.047U	1		R9024	ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
C9020	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	1		R9025	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
C9021	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1		R9026	ERJ3GEYJ4R7	M.RESISTOR CH 1/16W 4.7	1	
C9022	ECST1CC226	T.CAPACITOR CH 16V 22U	1		R9027	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
C9023	ECST1CY105	C.CAPACITOR CH 16V 1U	1		R9028	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
C9024	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1		R9029	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
C9025	ECST1CY335	T.CAPACITOR CH 16V 3.3U	1		R9030	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
C9026	ECUX1H181JCV	C.CAPACITOR CH 50V 180P	1		R9031	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
C9027	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	1		R9032	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
C9028	ECST1CX106	T.CAPACITOR CH 16V 10U	1		R9033	ERJ3GEYJ150	M.RESISTOR CH 1/16W 15	1	
C9029	ECUX1H272KBV	C.CAPACITOR CH 50V 2700P	1		R9034	ERJ3GEYJ1R0	M.RESISTOR CH 1/16W 1	1	
C9030,31	EEAFC0J121	E.CAPACITOR 6.3V 120U	2		R9035	ERJ3GEYJ622	M.RESISTOR CH 1/16W 6.2K	1	
C9032	ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1		R9036	ERJ3GEYJ470	M.RESISTOR CH 1/16W 47	1	
C9033	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1		R9037	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
C9034,35	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	2		R9038	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
C9036	ECUX1H331JCV	C.CAPACITOR CH 50V 330P	1		R9039	ERJ3GEYJ912	M.RESISTOR CH 1/16W 9.1K	1	
C9037	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1		R9040	ERJ3GEYJ512	M.RESISTOR CH 1/16W 5.1K	1	
C9038,39	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	2		R9041	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
C9040	EEUFC1J680	E.CAPACITOR 63V 68U	1		R9042	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
					R9043	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
D9001	MA142K	DIODE	1		R9044	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
D9002	RD10UMB1	DIODE	1		R9045	ERJ3RBD103	M.RESISTOR CH 1/16W 10K	1	
D9003	MA3J14300L	DIODE	1		R9046	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R9047	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9048-50	ERJ3RBD271	M.RESISTOR CH 1/16W 270	3	
R9051	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R9052	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R9053	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R9054-56	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	3	
R9059	ERJ12RQFR33	M.RESISTOR CH 1/2W 0.33	1	
R9060,61	K5H5011A0004	FUSE	2	
TP9001	EYF6CU	TEST POINT	1	
VR9001,02	EVM7JGA00B53	V.RESISTOR 5K	2	
VR9003	EVM7JGA00B52	V.RESISTOR 500	1	
VR9004	EVM7JGA00B22	V.RESISTOR 200	1	
		MISCELLANEOUS		
	VWJ15G2055L0	FLAT CABLE	1	
■ E3	VEP20867A	FRONT C.B.A.	1 (RTL)	
C9201	EEAFC1C560	E.CAPACITOR 16V 56U	1	
C9202	ECST1AC226	T.CAPACITOR CH 10V 22U	1	
C9203	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C9205	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
C9206	EEAFC1C560	E.CAPACITOR 16V 56U	1	
C9207	ECUX1H090DCV	C.CAPACITOR CH 50V 9P	1	
C9208,09	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	2	
C9210	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1	
C9211	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	1	
C9212	ECUX1H270JCV	C.CAPACITOR CH 50V 27P	1	
C9216,17	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2	
C9218	ECQV1104JM	P.CAPACITOR 100V 0.1U	1	
C9221	ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1	
C9222	ECUX1H270JCV	C.CAPACITOR CH 50V 27P	1	
C9223	ECQV1104JM	P.CAPACITOR 100V 0.1U	1	
D9201,02	B3AAB0000103	DIODE	2	
D9203	MA3J14300L	DIODE	1	
L9201-04	VLQ0163J220	COIL 22UH	4	
L9205,06	ERJ8GEY0R00	M.RESISTOR CH 1/8W 0	2	
P9201	VJS2907D015	CONNECTOR (FEMALE)	1 K1MN15B00011	
Q9201-03	2SD1819A-R	TRANSISTOR	3	
Q9204	2SC3624	TRANSISTOR	1	
Q9206	B1ADCC0000008	TRANSISTOR	1	
Q9207	2SD1819A-R	TRANSISTOR	1	
Q9208	2SB1218A-R	TRANSISTOR	1	
Q9210	2SB1218A-R	TRANSISTOR	1	
Q9211	2SC4181	TRANSISTOR	1	
Q9212	2SD1821-R	TRANSISTOR	1	
Q9213	2SC4181	TRANSISTOR	1	
Q9214	2SD1821-R	TRANSISTOR	1	
Q9215	2SB1220-R	TRANSISTOR	1	
Q9216	2SB1218A-R	TRANSISTOR	1	
Q9217,18	2SC4181	TRANSISTOR	2	
R9201	ERJ6RBD681	M.RESISTOR CH 1/10W 680	1	
R9202	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9207	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R9208,09	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R9210	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9211	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R9212	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9213	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R9214	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R9215	ERJ6RBD223	M.RESISTOR CH 1/10W 22K	1	
R9216	ERJ6RBD152	M.RESISTOR CH 1/10W 1.5K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R9217	ERJ6RED124	M.RESISTOR CH 1/10W 120K	1	
R9218	ERJ6RBD104	M.RESISTOR CH 1/10W 100K	1	
R9219	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9220	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9221	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R9222	ERJ6RBD102	M.RESISTOR CH 1/10W 1K	1	
R9223	ERJ6RBD681	M.RESISTOR CH 1/10W 680	1	
R9224	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R9225	ERJ3RBD471	M.RESISTOR CH 1/16W 470	1	
R9226	ERJ3RBD102	M.RESISTOR CH 1/16W 1K	1	
R9227	ERJ3RBD101	M.RESISTOR CH 1/16W 100	1	
R9228	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9229,30	ERJ3RBD302	M.RESISTOR CH 1/16W 3K	2	
R9231	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9232	ERJ3RBD102	M.RESISTOR CH 1/16W 1K	1	
R9233,34	ERJ6RBD562	M.RESISTOR CH 1/10W 5.6K	2	
R9235	ERJ6RBD912	M.RESISTOR CH 1/10W 9.1K	1	
R9236	ERJ6RBD222	M.RESISTOR CH 1/10W 2.2K	1	
R9237	ERJ3RBD222	M.RESISTOR CH 1/16W 2.2K	1	
R9238	ERJ6RBD561	M.RESISTOR CH 1/10W 560	1	
R9239	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R9240	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R9241	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R9242,43	ERJ3GEYJ680	M.RESISTOR CH 1/16W 68	2	
R9244	ERJ6RBD104	M.RESISTOR CH 1/10W 100K	1	
R9245	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R9246	ERJ3RBD473	M.RESISTOR CH 1/16W 47K	1	
R9247	ERJ3RBD392	M.RESISTOR CH 1/16W 3.9K	1	
SW9201,02	VSS0186	SWITCH	2 K0D112A00047	
VR9201	EVUFRA004C23	V.RESISTOR 2K	1	
VR9202	EVUFRA004B13	V.RESISTOR 1K	1	
VR9203	EVUFRA004B55	V.RESISTOR 500K	1	
■ E4	VEP20868A	REAR C.B.A.	1 (RTL)	
C9404	EEUFC1C331	E.CAPACITOR 16V 330U	1	
C9405	VCF0066J182	P.CAPACITOR 160V 1800P	1 F0A2C182A001	
C9406	VCF0066J102	P.CAPACITOR 160V 1000P	1 F0A2C102A001	
C9407	VCEA1DAP220	E.CAPACITOR 20V 22U	1 F2D1D2200003	
C9408	VCEA0JAP330	C.CAPACITOR 6.3V 33P	1 F2D0J330A002	
C9409,10	ECKD3A472MEH	C.CAPACITOR 1KV 4700P	2	
C9411	VCF0066J223	P.CAPACITOR 160V 0.022U	1 F0A2C223A001	
C9412,13	ECKD2H103MD	C.CAPACITOR 500V 0.01U	2	
C9414	ECQV1104JM	P.CAPACITOR 100V 0.1U	1	
D9404	MA142K	DIODE	1	
D9405	EC11FS2	DIODE	1	
D9406	MA142K	DIODE	1	
D9407	SB05-05CP-TB	DIODE	1 B0JCBF000001	
D9408	SHV-03	DIODE	1 B0EBEX000001	
L9404	VLQEL06F101J	COIL 100UH	1 G0C101J00003	
L9405	ELH5L3112	COIL	1	
P9402	ILY2PS15T2	CONNECTOR	1	
P9403	K1KA05A00102	CONNECTOR (MALE)	1	
Q9402	2SK1954Z	TRANSISTOR	1	
R9407	ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R9410	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9411	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R9415	ERJ6RED180	M.RESISTOR CH 1/10W 18	1	
R9417	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R9418-20	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	3	
R9421	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R9422	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9423	ERJ3RBD473	M.RESISTOR CH 1/16W 47K	1	

Service Manual

1.5" Electronic View Finder AG-VF5P/E/MC

Sec. 1 *Disassembly Procedures*

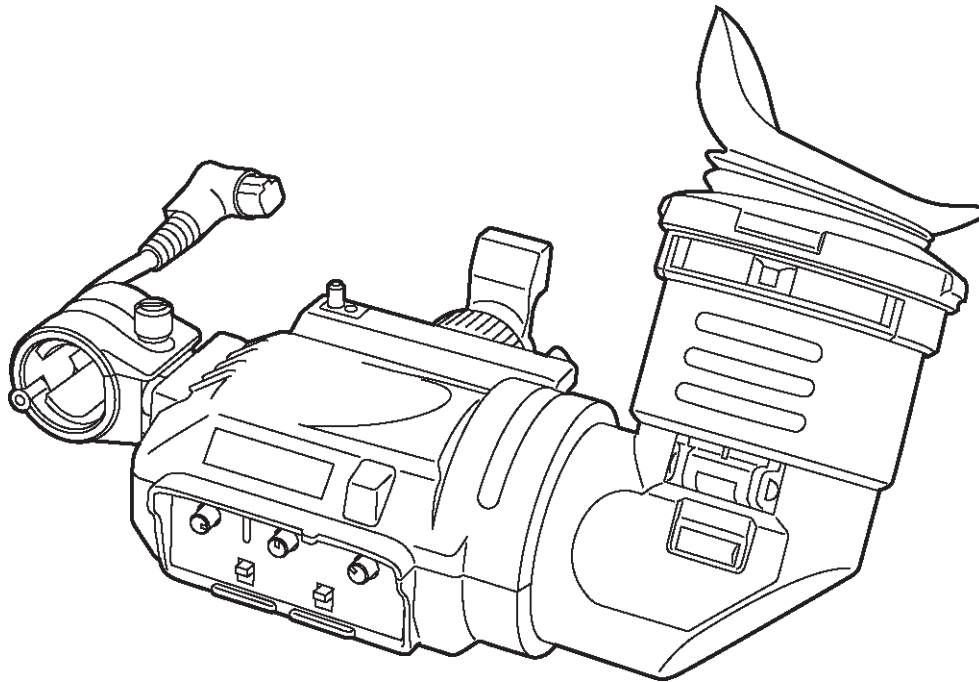
Sec. 2 *Electrical Adjustments*

Sec. 3 *Block Diagrams*

Sec. 4 *Schematic Diagrams*

Sec. 5 *Circuit Board Diagrams*

Sec. 6 *Exploded Views &
Replacement Parts List*




WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products deal with in this service manual by anyone else could result in serious injury or death.

AG-VF5P

Specifications

Power supply: DC 9 V, 12 V (supplied by camera)
Power consumption: 2 W

 indicates safety information.

Picture tube:

1.5-inch high-resolution monochrome picture tube

Horizontal resolution:

600 lines (center, typical, 4 : 3 mode)

Image system:

525 lines, 59.94 Hz

External adjustment controls:

Controls (BRIGHT, CONTRAST, PEAKING)

Switches (TALLY ON/OFF, ZEBRA ON/OFF)

Allowable temperature range:

32°F to 104°F (0°C to 40°C)

Allowable humidity range:

85% or less (no condensation)

External dimensions (W×H×D):

9 7/8"×3 1/4"×7 1/2" (250.5×81×190 mm)

Weight:

1.5158 lb (689 g)

AG-VF5E/MC

Specifications

Power supply: DC 9 V, 12 V (supplied by camera)
Power consumption: 2 W

 indicates safety information.

Picture tube:

1.5-inch high-resolution monochrome picture tube

Horizontal resolution:

600 lines (center, typical, 4 : 3 mode)

Image system:

625 lines, 50 Hz

External adjustment controls:

Controls (BRIGHT, CONTRAST, PEAKING)

Switches (TALLY ON/OFF, ZEBRA ON/OFF)

Allowable temperature range:

0°C to 40°C

Allowable humidity range:

85% or less (no condensation)

External dimensions (W×H×D):

250.5×81×190 mm

Weight:

689 g

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. The resistance value must be more than $5M\Omega$.

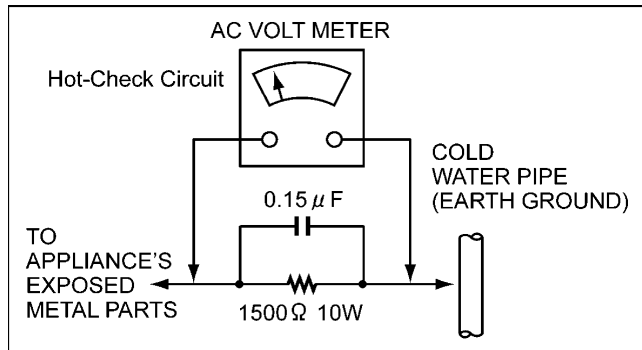


Figure1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet.
Do not use an isolation transformer for this check.
2. Connect a $1.5k\Omega$, 10W resistor, in parallel with a $0.15\mu F$ capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it.
(most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpacked replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

X-RADIATION

WARNING

1. The potential source of X-radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10kV without causing x-radiation.

Note : It is important to use an accurate periodically calibrated high voltage meter.

3. Measure the High Voltage. The meter (electric type) reading should indicate $2.5kV, \pm 0.15kV$. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an x-radiation possibility, it is essential to use the specified picture tube.

SECTION 1

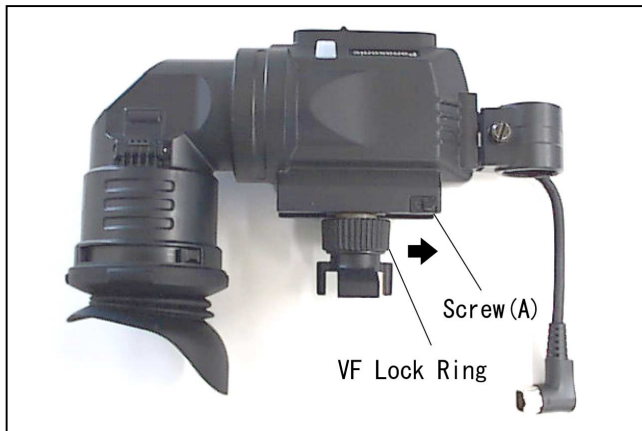
DISASSEMBLY PROCEDURES

CONTENTS

1. Removal of The Attachment Unit	DIS-1
2. Removal of The Mic Holder.....	DIS-1
3. Removal of The Eye Cap (rubber).	DIS-1
4. Removal of The Eyepeace Ass'y (Eyepeace Holder).....	DIS-1
5. Removal of The Top Case.....	DIS-2
6. Removal of The CRT Ass'y	DIS-2
<Caution when the installation of The CRT Ass'y>.....	DIS-4

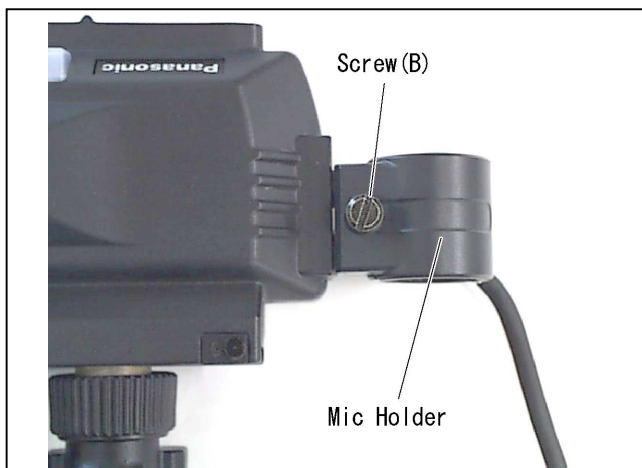
1. Removal of Attachment Unit

1. Loosen VF lock ring, and pull out VF lock ring to the direction of the arrow after loosening 1 screw (A).

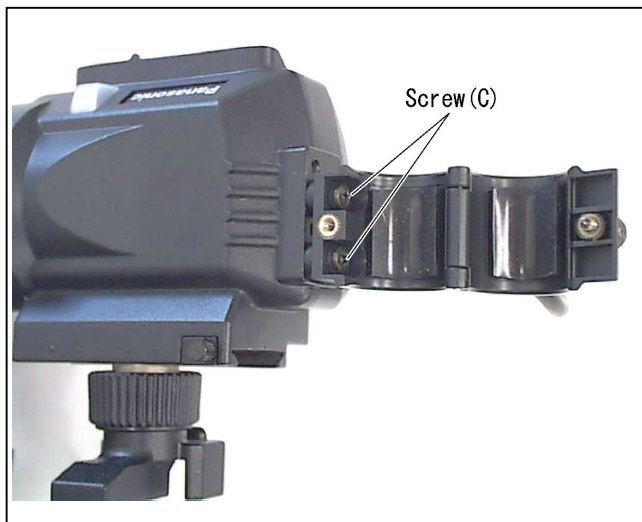


2. Removal of Mic Holder

1. Loosen 1 screw (B), and open Mic Holder.

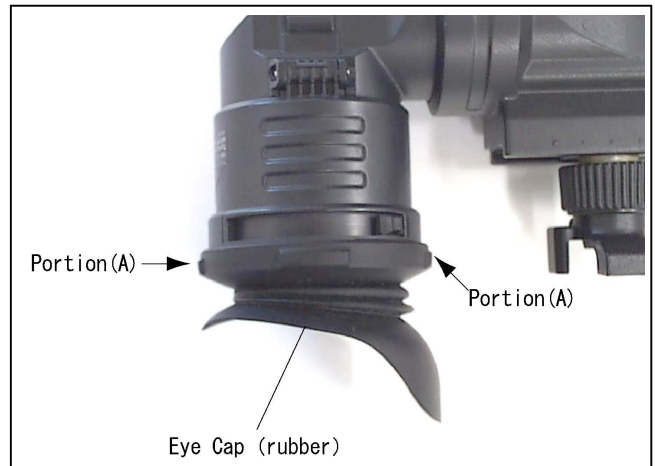


2. Remove 2 screws (C) and the Mic Holder.



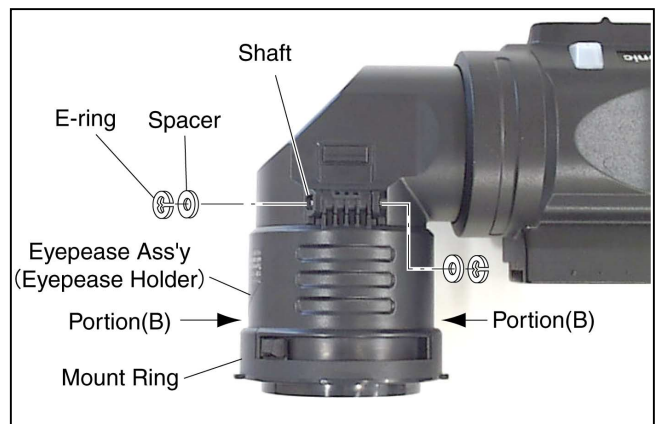
3. Removal of Eye Cap (rubber)

1. Remove Eye Cap by turning over the portion (A).
Note: Be careful not to damage the rubber.

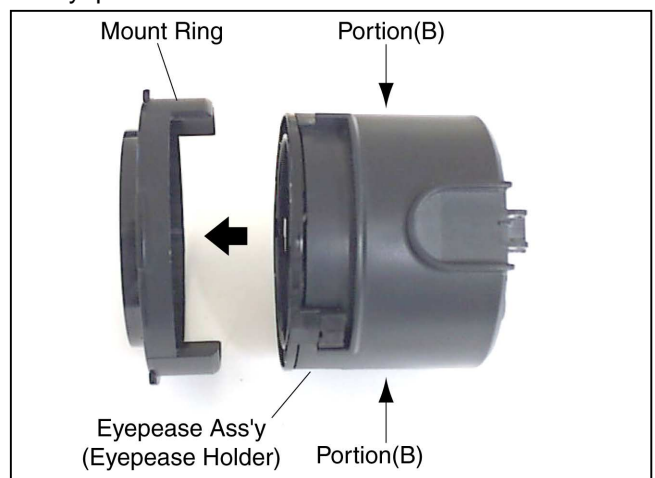


4. Removal of Eyepiece Ass'y (Eyepiece Holder)

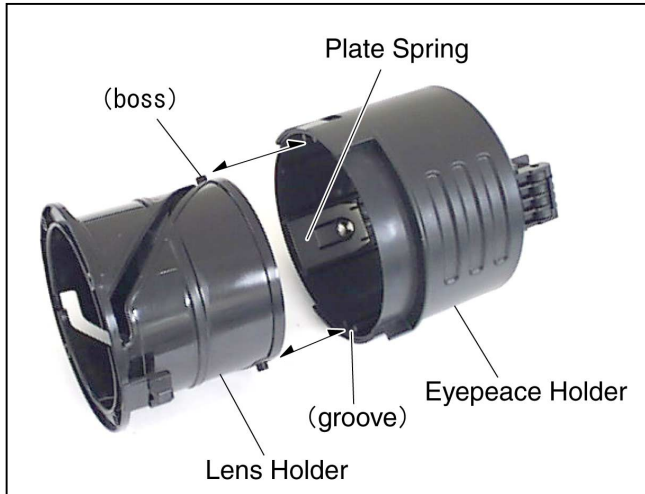
1. Remove E-ring with the Spacer and Eyepiece Ass'y (Eyepiece Holder) after pulling out shaft.



2. Remove Mount Ring by pushing the portion (B) of Eyepiece Holder.

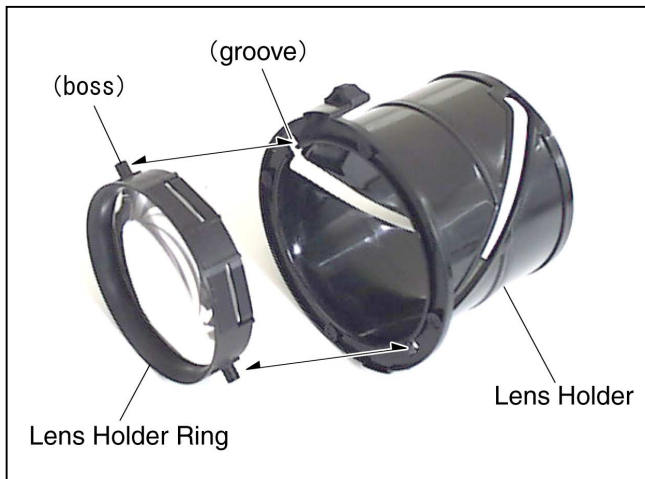


3. Remove Lens Holder and Plate Spring from Eyepiece Holder.



Note: When installing, set Plate Spring into groove of Eyepiece Holder as shown in the figure, and then install Lens Holder Ring by setting its bosses (2 place) into groove of Eyepiece Holder.

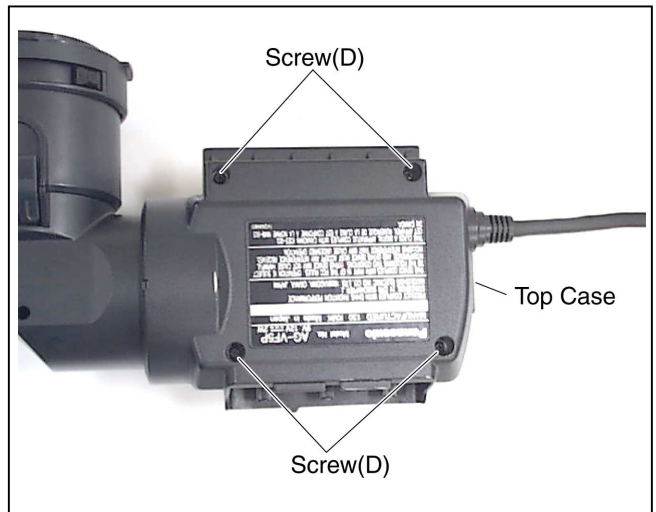
4. Along groove of Lens Holder, slide Lens Holder Ring clockwise and remove it.



Note: When installing, make sure that bosses of Lens Holder Ring are in the side of the Lens Holder as shown in the figure. After confirmation, install the Lens Holder Ring by setting its bosses into groove of Lens Holder.

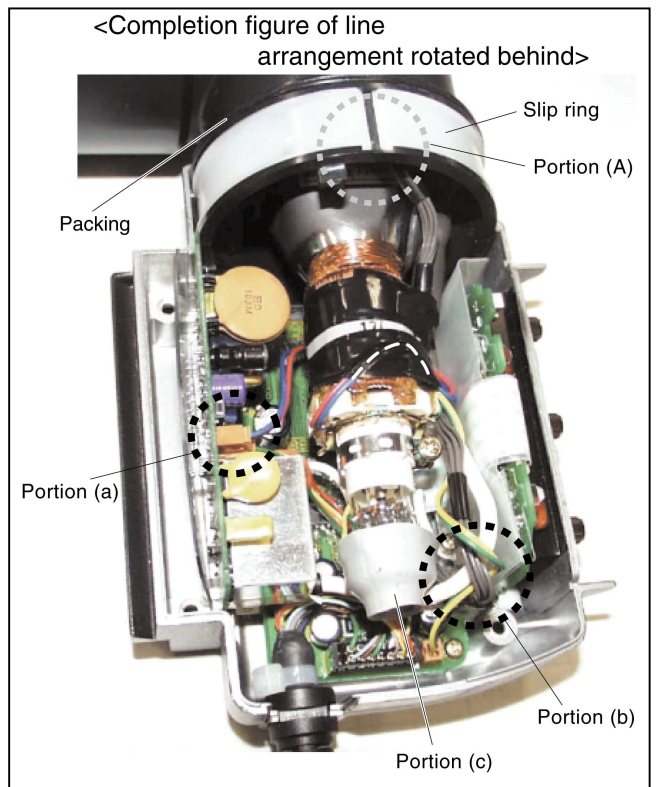
5. Removal of Top Case

1. Loosen 4 screws (D), and then remove Top Case.



6. Removal of the CRT Ass'y

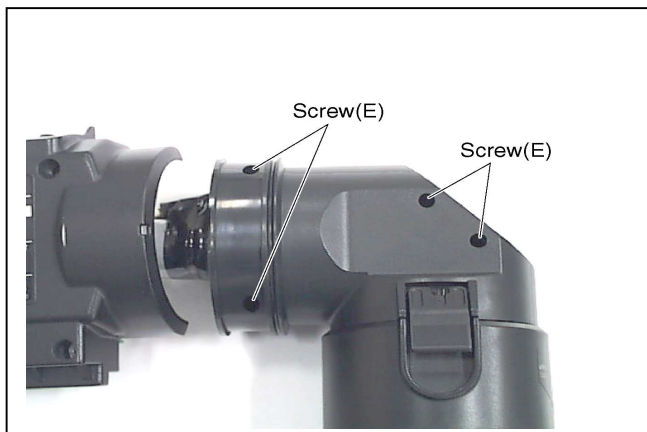
1. Pull out connectors (2 for the portion a,b each) on C.B.A. and CRT socket (portion C)



2. Remove Slip Ring and Packing from CRT case.

Note: When install Slip Ring, put the projection of A portion into groove until it clicks.

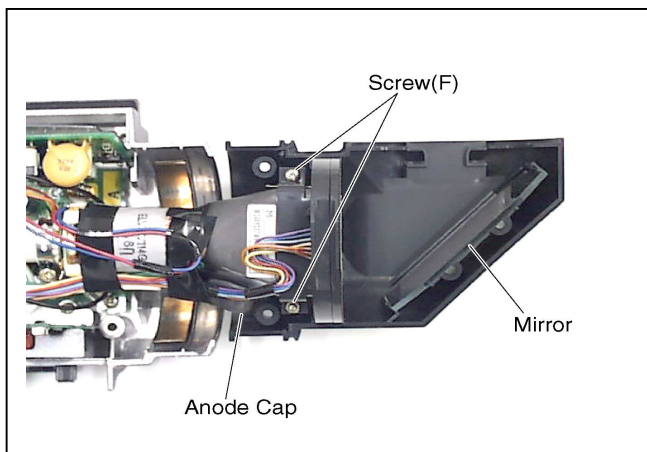
3. Loosen 4 screws (E), and then remove CRT case.



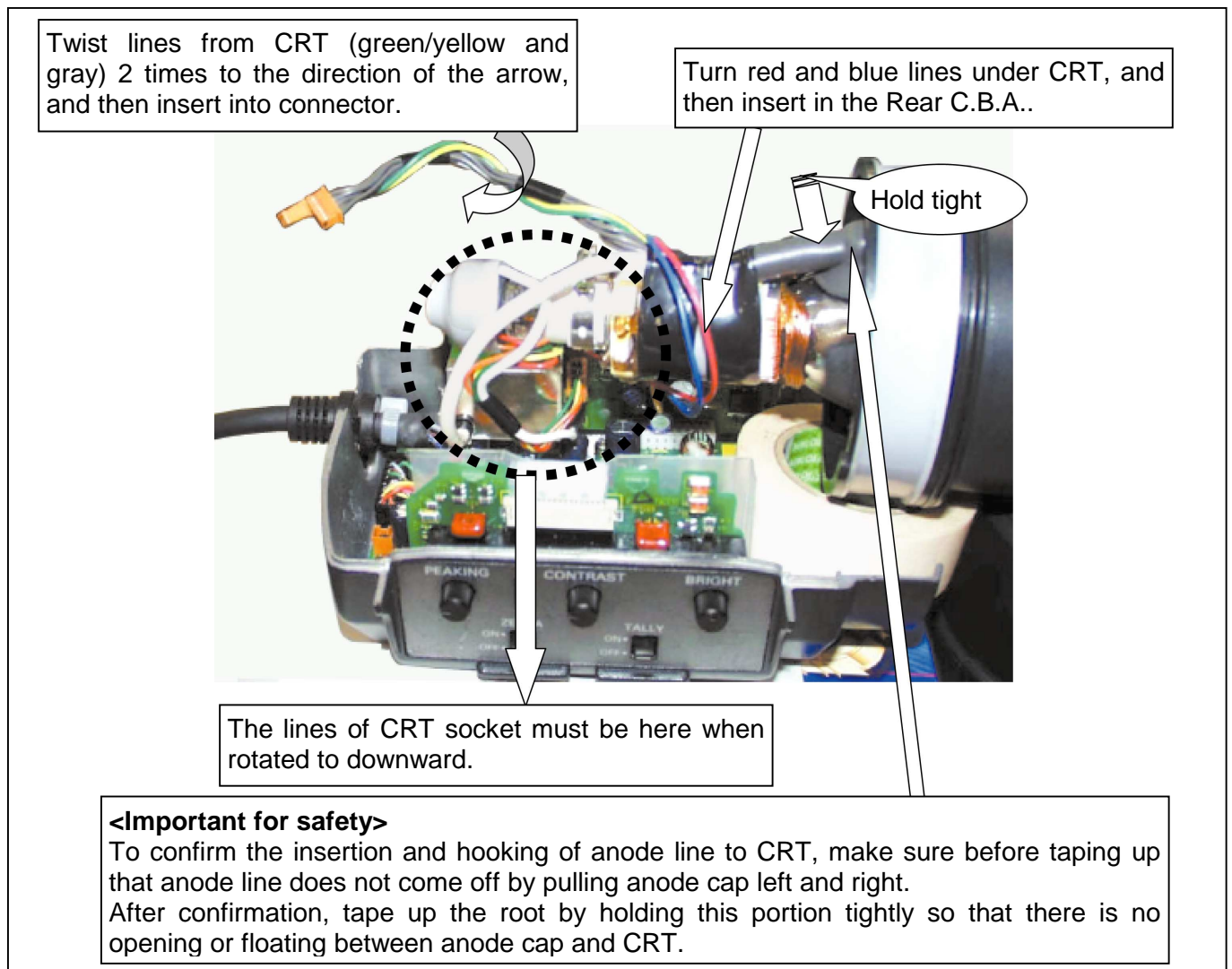
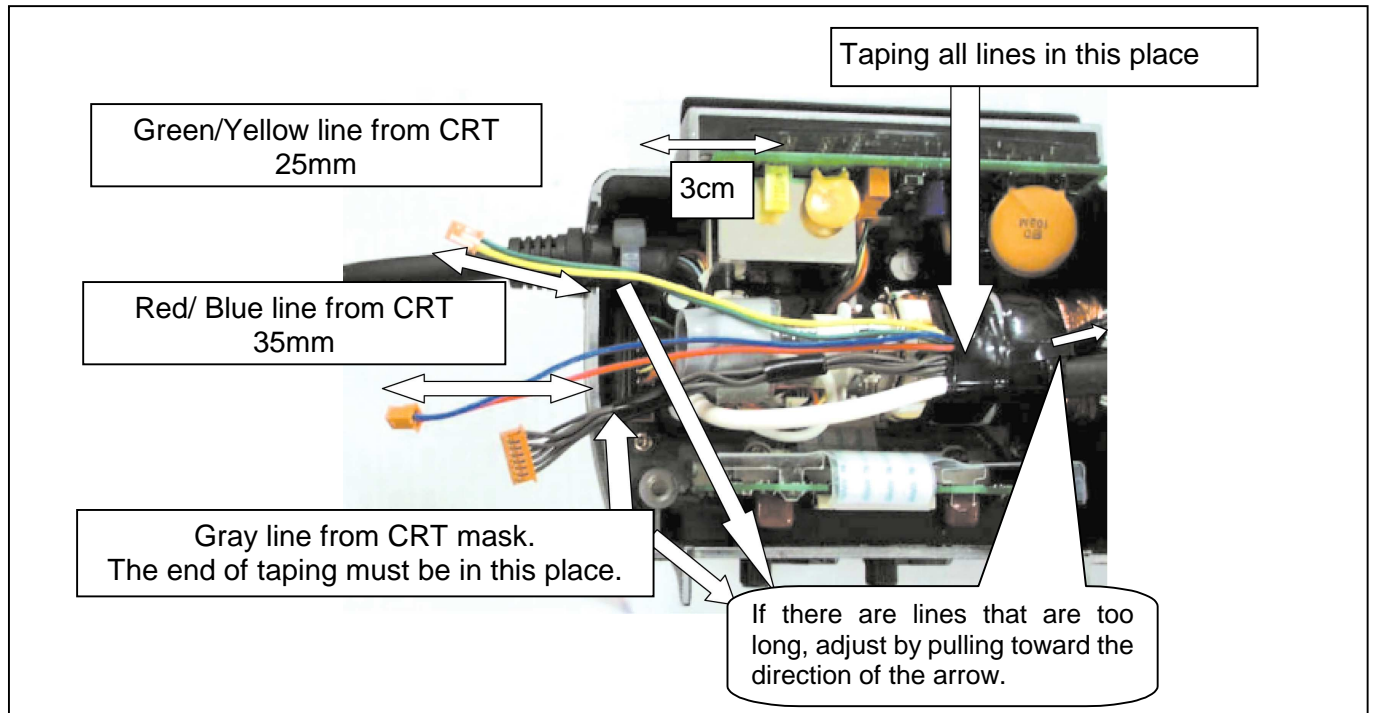
Note: Remove CRT case so as not to drop the mirror installed in CRT case.

Note: Be careful not to put any fingerprints on the mirror.

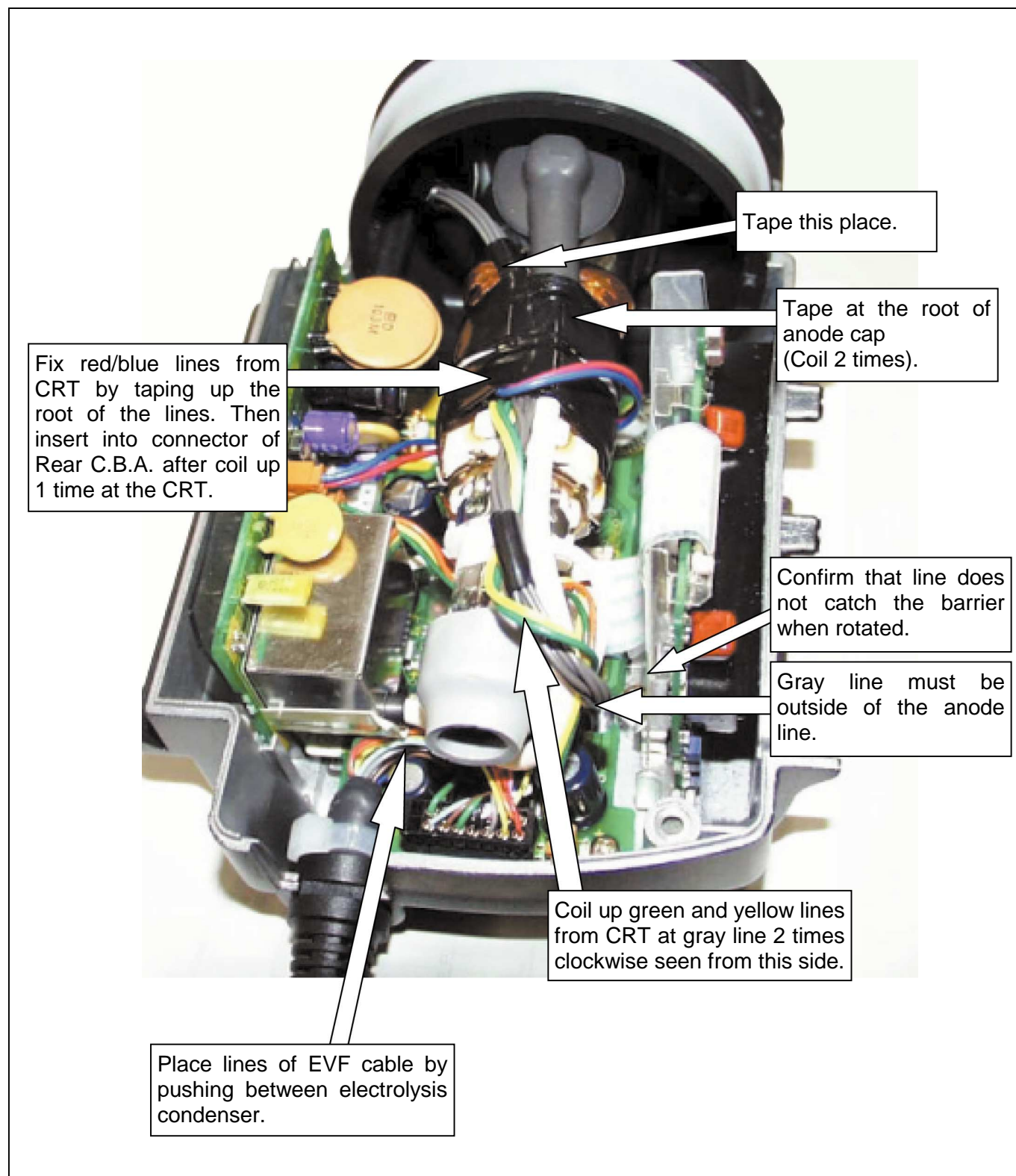
4. Remove anode cap from CRT.
5. Loosen 2 screws (F), and then remove CRT from Escutcheon Ass'y.



<Caution for the installation of the CRT Ass'y>



<Lines binding completed figure at rotating eyepiece to downward>



SECTION 2

ELECTRICAL ADJUSTMENT

CONTENTS

1. H HOLD Adjustment	EAD-1
2. V HOLD Adjustment.....	EAD-1
3. VIDEO +B Adjustment.....	EAD-2
4. Sub Brightness Adjustment	EAD-2
5. Rotation Adjustment	EAD-2
6. Centering Adjustment.....	EAD-3
7. Picture Size Adjustment	EAD-3
8. Linearity Adjustment	EAD-3
9. Balance Adjustment	EAD-4
10. Focus Adjustment.....	EAD-4

Electrical Adjustment Procedures

<Recommended Measurement Equipment (M.EQ) & Servicing Fixtures>

No.	NAME	Model	Remark
1	Digital Volt Meter		
2	Frequency Counter		
3	Registration Chart	VFK0673	
4	Screwdriver for Adjustment		*1
5	Camera (-Recorder)	AJ-D410A AG-DVC200	*2
6	Monitor		*3

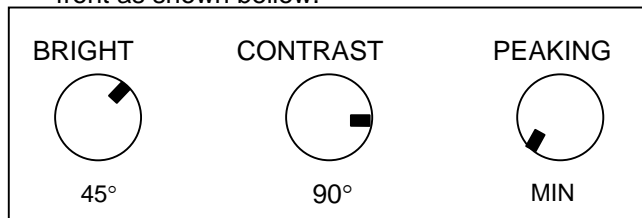
*1: Please use a plastic type screwdriver.

*2: Supply a power and video signal to the Electric Viewfinder.

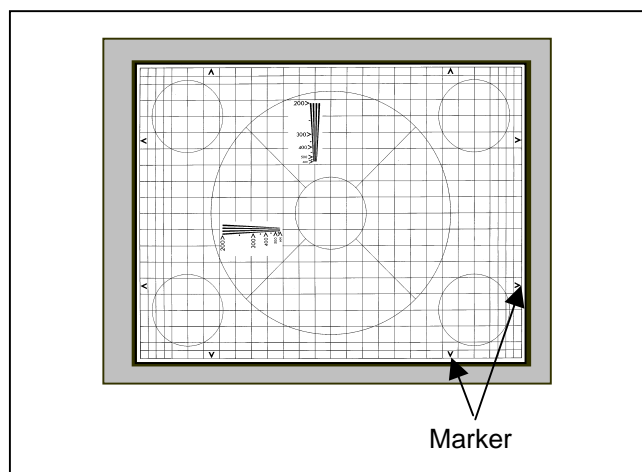
*3: Connect the video out of Camera (-Recorder).

<Preparation of adjustment>

- Before start the adjustment, Set BRIGHT, CONTRAST, and PEAKING VR position on the front as shown bellow.



- Connect the Video OUT or CAM OUT to the monitor.
- Set a monitor to under scanning mode.
- Aim a camera (-recorder) at the "Registration chart", and adjust the lens focus by the monitor screen.
- Adjust Zoom and camera position so that each marker on the chart is just fit on the monitor screen as shown bellow.



1. H HOLD Adjustment

Board	MAIN
TP	EVF Screen
Adjust	VR9001 [H HOLD]
Input	Camera color bar
M.EQ	-----
Spec.	Picture is locked horizontally

- Set a camera (-recorder) to **Color Bar** mode.
- Confirm that picture on the EVF screen is locked horizontally.
If it is not, adjust **VR9001**. Then again confirm that picture on the EVF screen get stable immediately after camera power is turned on.

2. V HOLD Adjustment

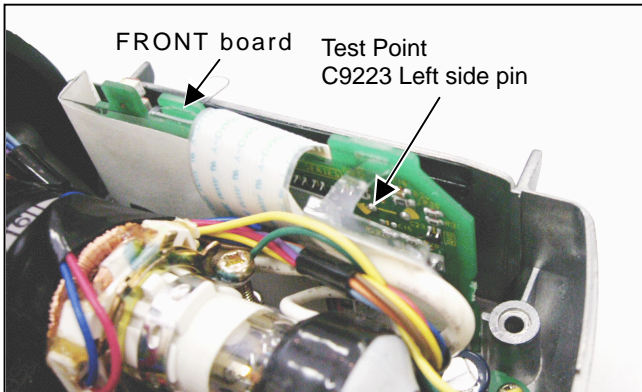
Board	MAIN
TP	EVF Screen
Adjust	VR9002 [V HOLD]
Input	Camera color bar
M.EQ	-----
Spec.	Picture is locked vertically

- Set a camera (-recorder) to **Color Bar** mode.
- Confirm that picture on the EVF screen is locked vertically.
If it is not, adjust **VR9002**. Then again confirm that picture on the EVF screen get stable immediately after camera power is turned on.

3. VIDEO +B Adjustment

Board	FRONT, REAR
TP	C9223 left side pin (FRONT board)
Adjust	VR9401 [VIDEO+B] (REAR board)
Input	Camera color bar
M.EQ	Digital Volt Meter
Spec.	45.5V+/-0.2V

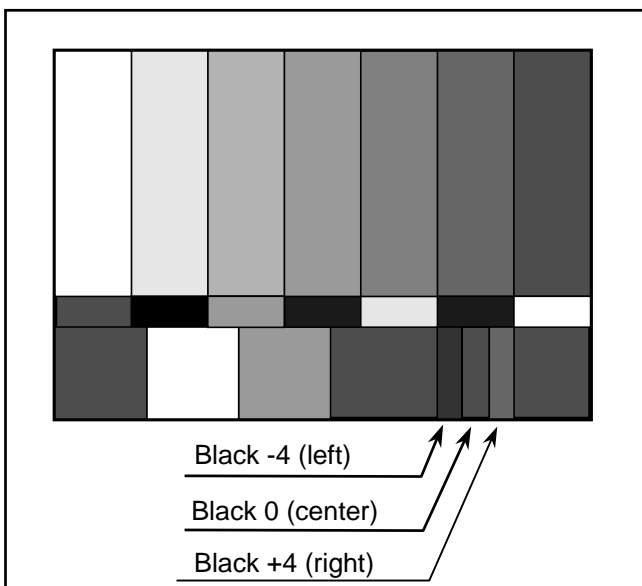
1. Adjust VR9401 so that DC voltage is in the specification.



4. Sub Brightness Adjustment

Board	REAR
TP	EVF Screen
Adjust	VR9403 [SUB BRIGHT]
Input	Camera color bar (SMPTE color bar / setup 0%)
M.EQ	-----
Spec	as shown in figure

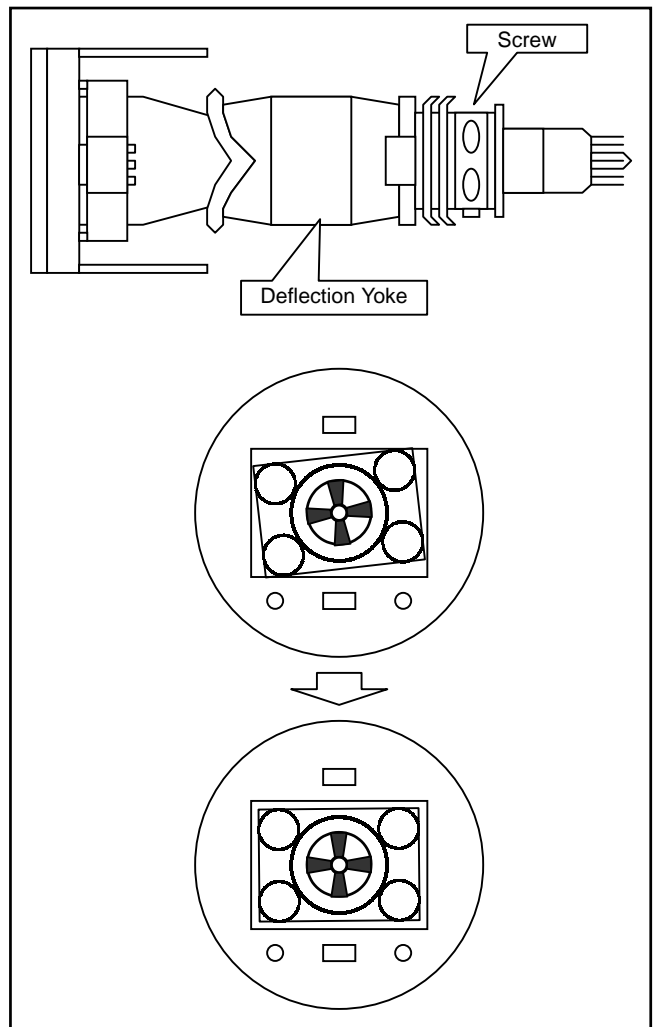
1. Set setup level of a camera (-recorder) to 0%.
2. Confirm the Black reference portion indicated by arrow.
3. Adjust **VR9403** so that the Black +4 (right) is slightly lighted and the Black 0 (center) and Black -4 (left) become black.
4. Set back the setup level of a camera (-recorder) to original setting.



5. Rotation Adjustment

Board	-----
TP	EVF Screen
Adjust	Deflection Yoke
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

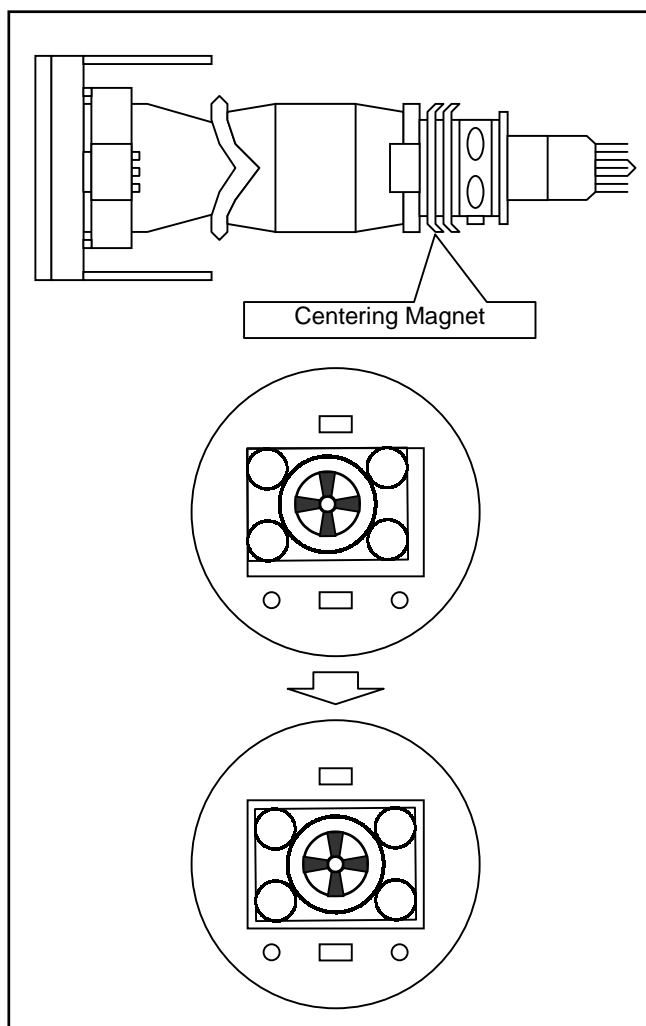
1. Loosen screw and rotate **deflection yoke** so that picture stands horizontally.
2. Tighten screw again



6. Centering Adjustment

Board	-----
TP	EVF Screen
Adjust	Centering Magnet
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

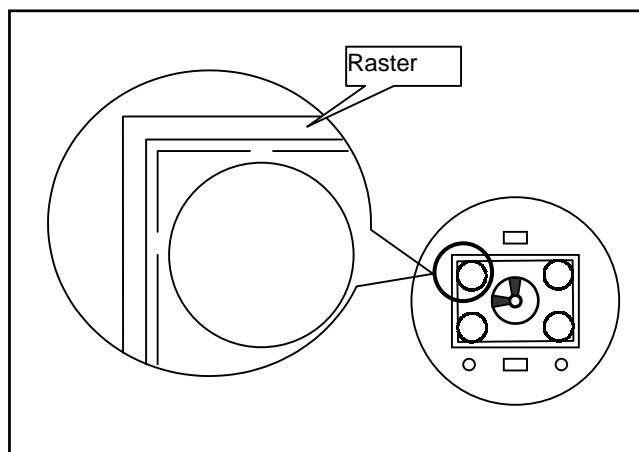
1. Rotate **Centering Magnet** so that picture stands at the center.



7. Picture Size Adjustment

Board	MAIN
TP	EVF Screen
Adjust	VR9004 [V SIZE]
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

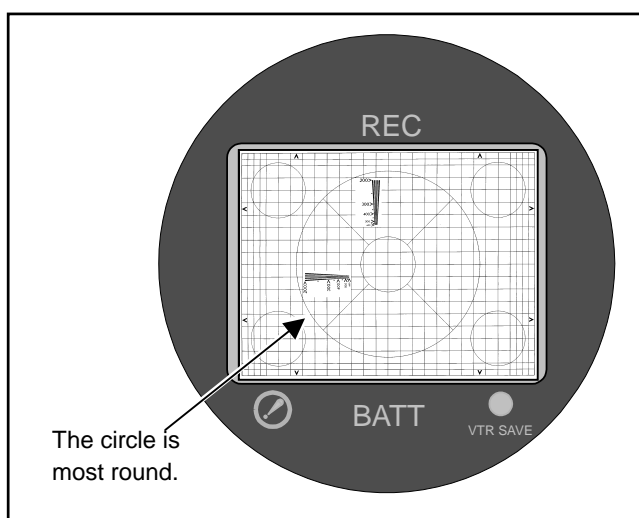
1. Adjust **VR9004** so that picture size (H:V) become 4:3. The width of raster portion around the picture should be same.



8. Linearity Adjustment

Board	MAIN
TP	EVF Screen
Adjust	VR9003 [V LIN]
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

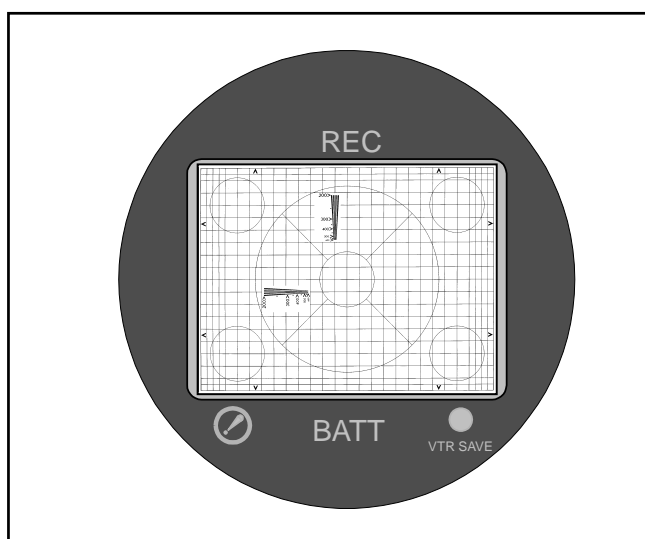
1. Adjust **VR9003** so that the "Circle" of registration chart is most round.



9. Balance Adjustment

Board	MAIN
TP	EVF Screen
Adjust	Deflection Yoke Centering Magnet VR9003 [V LIN] VR9004 [V SIZE]
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

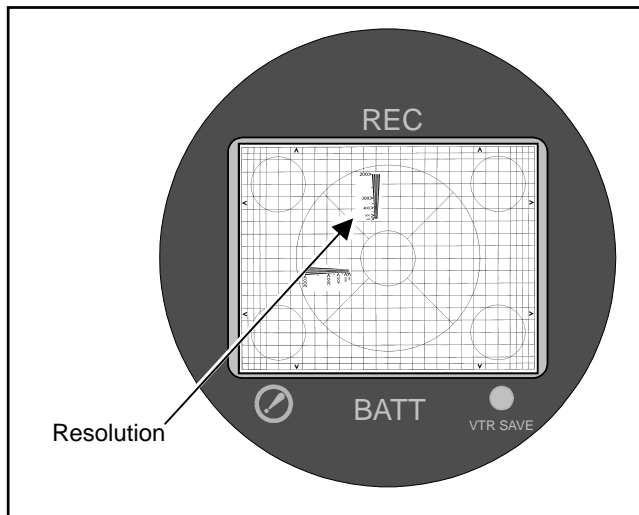
1. Execute fine adjustment of following item.
 - 2-5. Rotation Adjustment
 - 2-6. Centering Adjustment
 - 2-7. Size Adjustment
 - 2-8. Linearity Adjustment



10. Focus Adjustment

Board	REAR
TP	EVF Screen
Adjust	VR9402 [FOCUS]
Input	Registration Chart
M.EQ	-----
Spec.	Optimized resolution

1. Adjust **VR9402** so that Resolution is optimized.



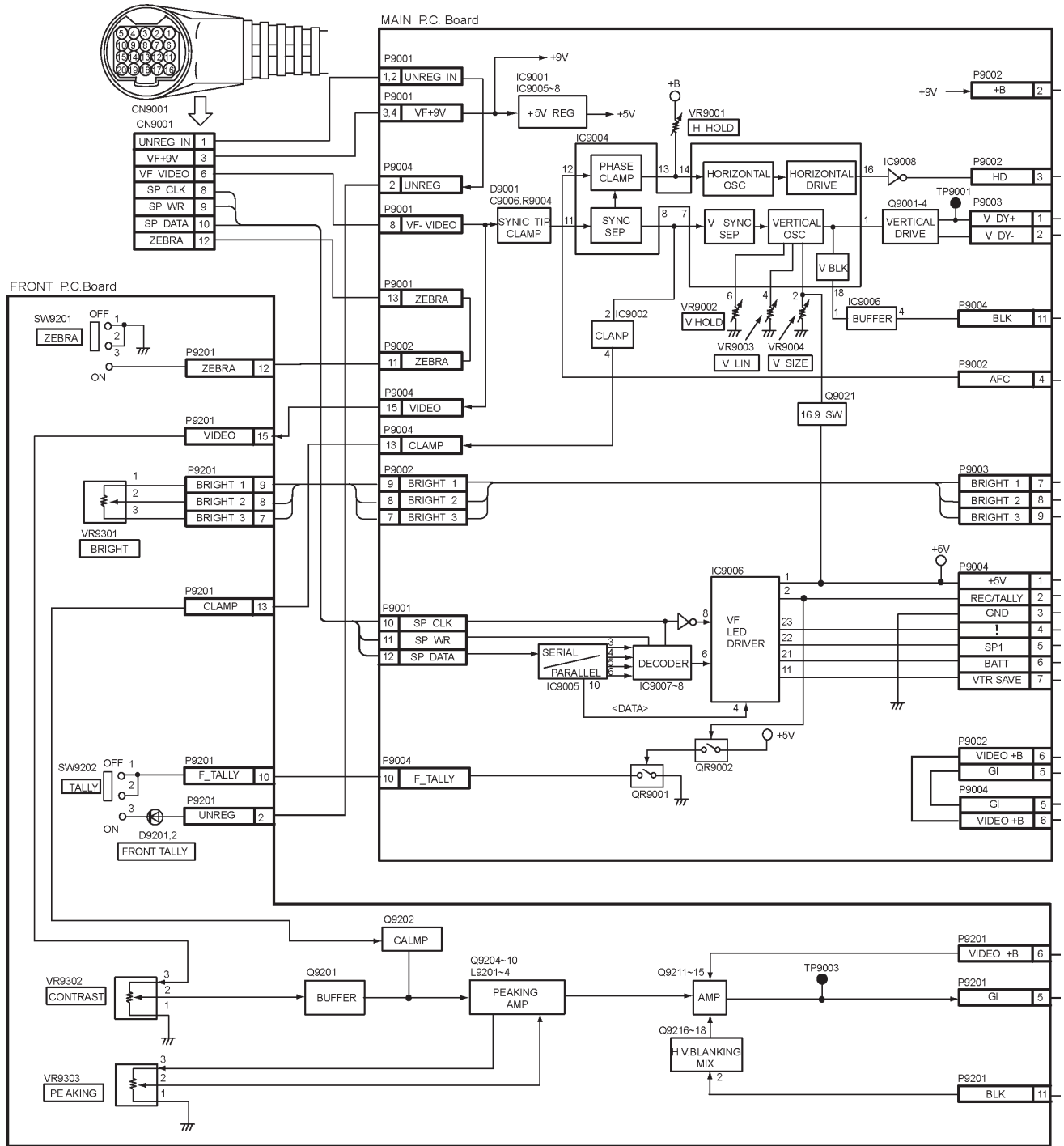
SECTION 3

BLOCK DIAGRAMS

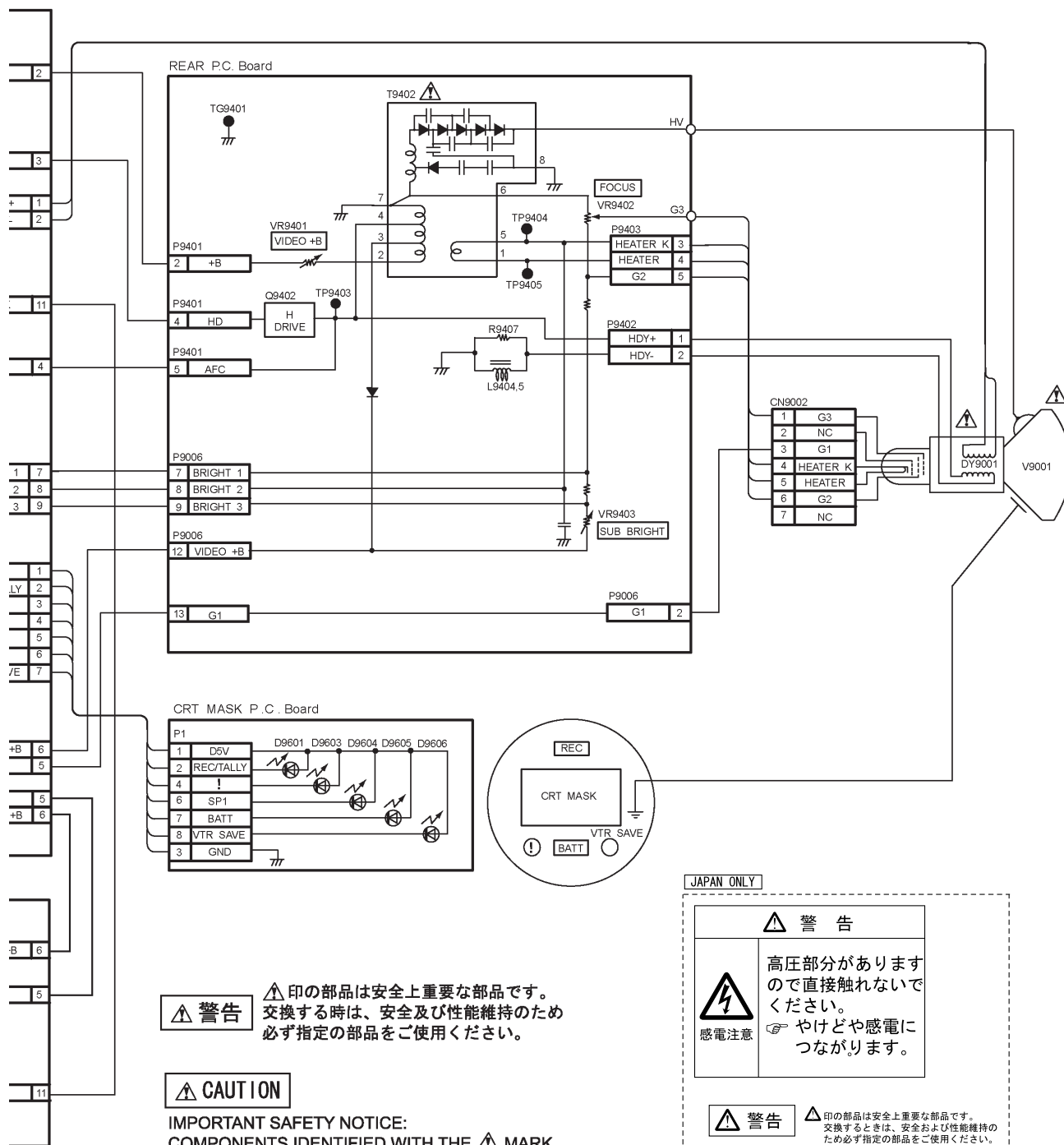
CONTENTS

EVF BLOCK DIAGRAM	BLK-1
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EVF BLOCK DIAGRAM

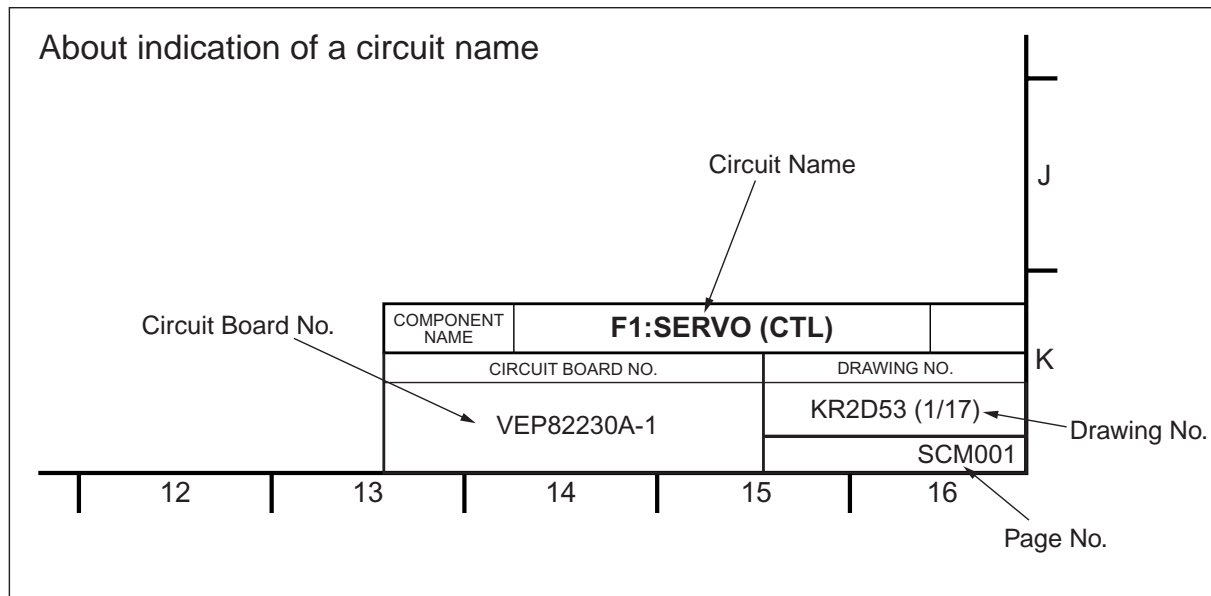


EVF BLOCK DIAGRAM



SECTION 4

SCHEMATIC DIAGRAMS




NOTE:

BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST.

CAUTION

THE ☐ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

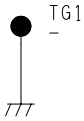
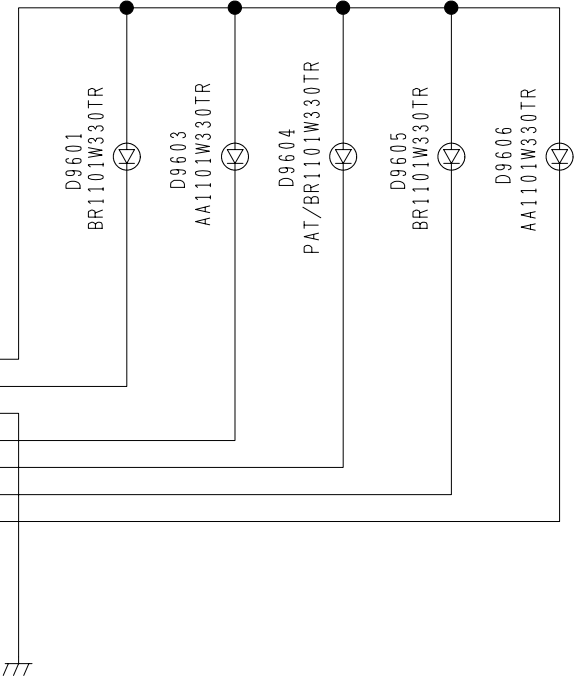
IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

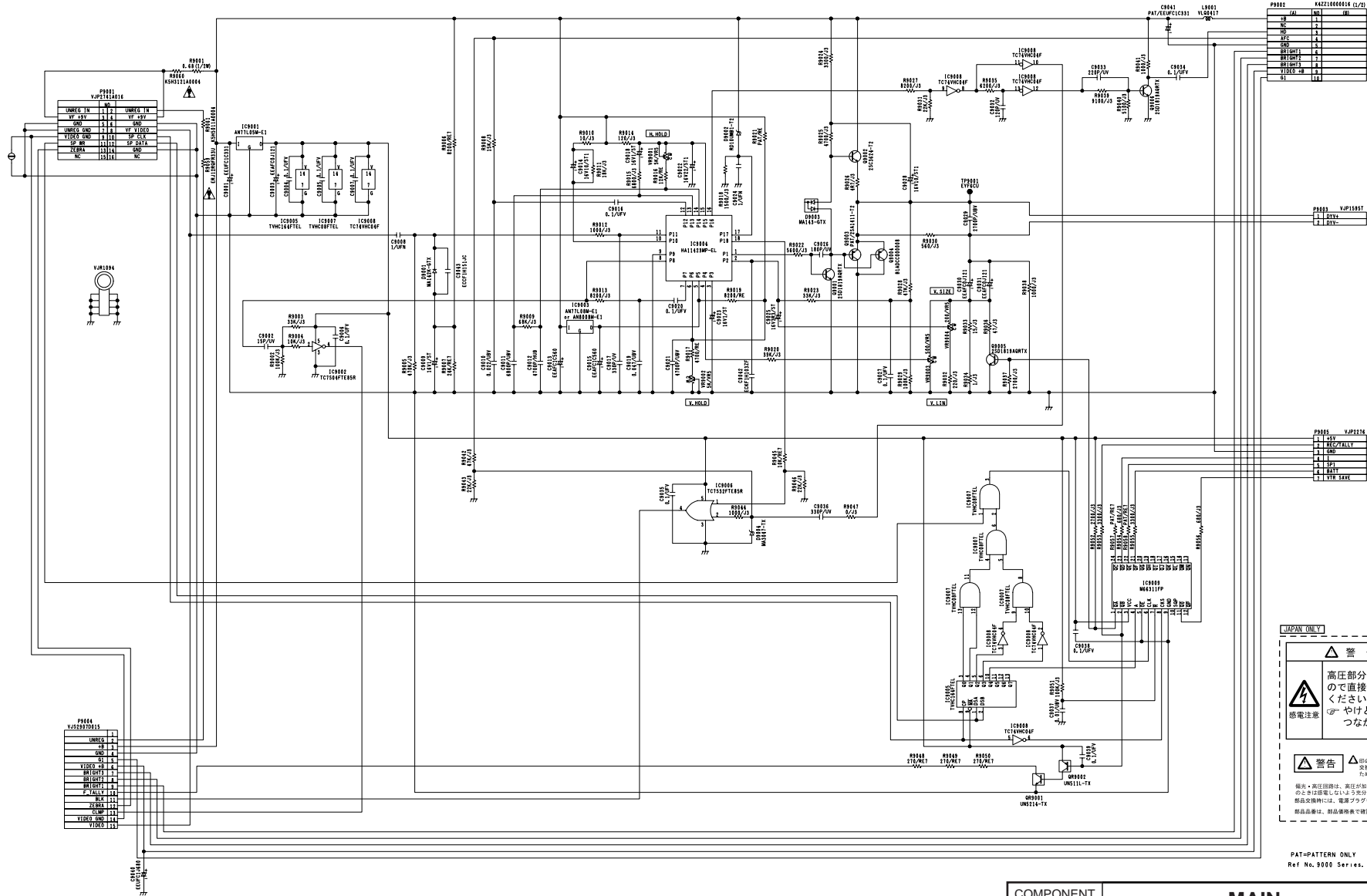
CONTENTS

CRTMASK	
CRTMASK (1/1)	SCM1
MAIN	
MAIN (1/1).....	SCM2
FRONT	
FRONT (1/1)	SCM3
REAR	
REAR (1/1).....	SCM4
EVF INTERFACE	
EVF INTERFACE(1/1)	SCM5

P1 7P-SZN	
+5V	1
REC/TALLY	2
GND	3
!	4
SP1	5
BATT	6
VTR SAVE	7



COMPONENT NAME	CRTMASK		01/01
CIRCUIT BOARD NO.		DRAWING NO.	
VEP20869A		KR0Q44 (1/1)	
		SCM001	



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK△ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



△印の部品は安全上重要な部品です。
交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

JAPAN ONLY

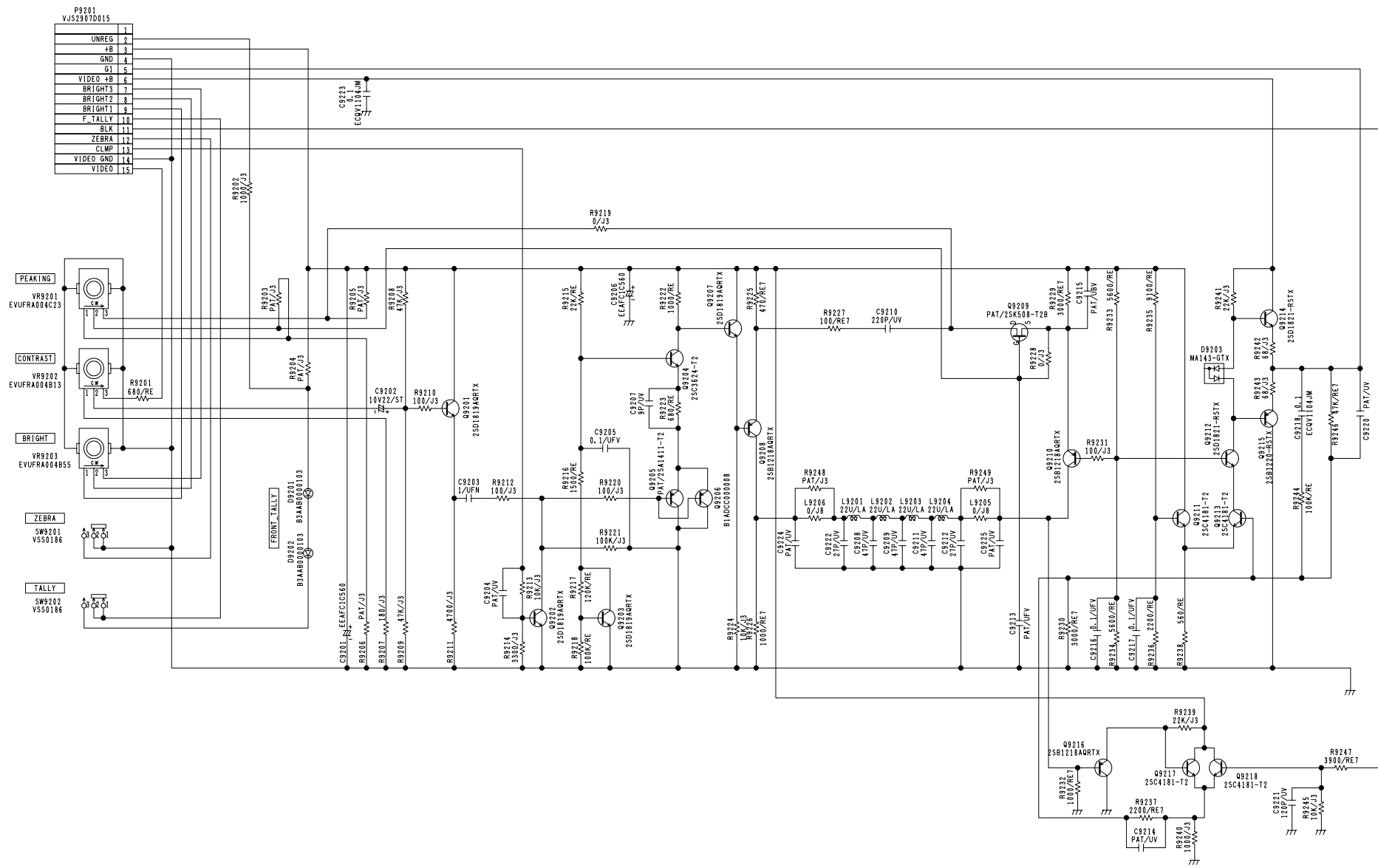
△ 警告
⚡
高圧部分がありますので直接触れないでください。
感電注意 ⚡ やけどや感電につながります。

△ 警告 △印の部品は安全上重要な部品です。交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

備考・取付箇所は、裏面に記述しておりますので必ずご確認ください。修理の際は、電源プラグを抜いてから行ってください。部品交換時には、電源プラグを抜いてから行ってください。部品番号は、部品保持書で確認の上交換ください。

PAT-PATTERN ONLY
Ref No. 9000 Series.

COMPONENT NAME		MAIN		01/01
CIRCUIT BOARD NO.		DRAWING NO.		
VEP20866A		KR0Q41(1/1)		
		SCM002		



P9401 PAT/TFC-B10Y-EY (1/2)		
(A)	NO.	(B)
	1	4B
	2	NC
	3	HD
	4	AFC
	5	GND
	6	BRIGHT1
	7	BRIGHT2
	8	BRIGHT3
	9	VIDEO +B
	10	G1

JAPAN ONLY

警告
高圧部分がありますので直接触れないでください。
感電注意 やけどや感電につながります。

警告 △印の部品は安全上重要な部品です。交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

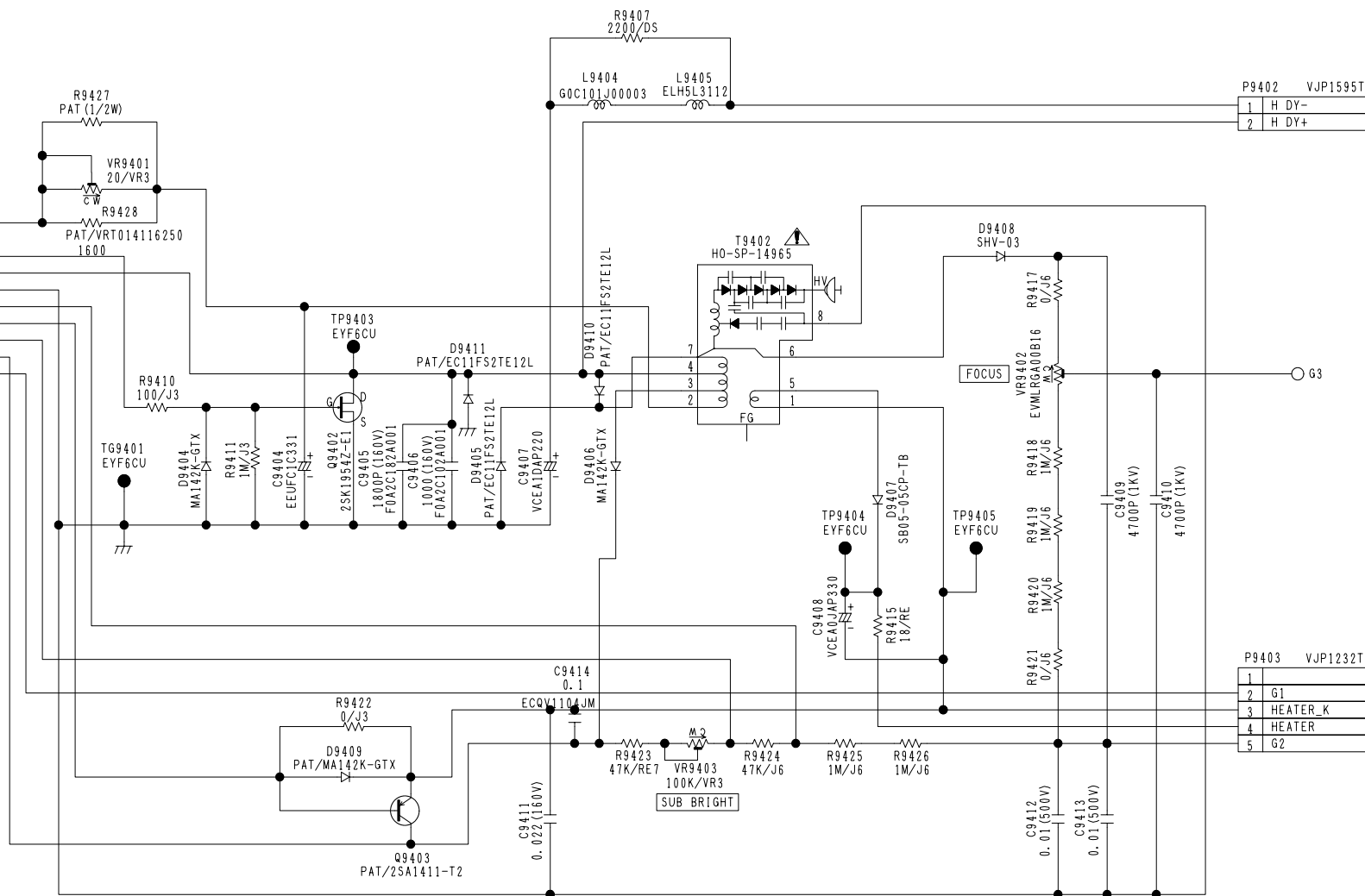
偏光・高圧回路は、高圧が加わっておりますので点検、修理のときは感電しないよう充分ご注意ください。
部品交換時には、電源プラグをぬいてから行ってください。
部品品番は、部品価格表で確認の上交換ください。

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK△ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



警告

△印の部品は安全上重要な部品です。
交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

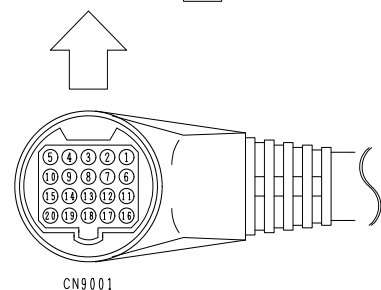


PAT=PATTERN ONLY
Ref No. 9400 Series.

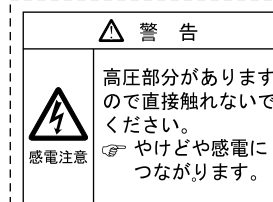
COMPONENT NAME	REAR	01/01
CIRCUIT BOARD NO.	DRAWING NO.	
VEP20868A	KR0Q43(1/1)	
	SCM004	

CN9001 K1EA209D0003

UNREG IN	1
UNREG IN	2
VF+9V	3
GND	4
GND	5
VF VIDEO	6
VIDEO GND	7
SP CLK	8
SP WR	9
SP DATA	10
UNREG GND	11
ZEBRA	12
ZOOM POSI	13
VF+9V	14
SP	15
SP	16
SP	17
SP	18
SP	19
GND	20



JAPAN ONLY



警告 印の部品は安全上重要な部品です。交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

偏光・高圧回路は、高圧が加わっておりますので点検、修理のときは感電しないよう充分ご注意ください。

部品交換時には、電源プラグを抜いてから行ってください。

部品品番は、部品価格表で確認の上交換ください。

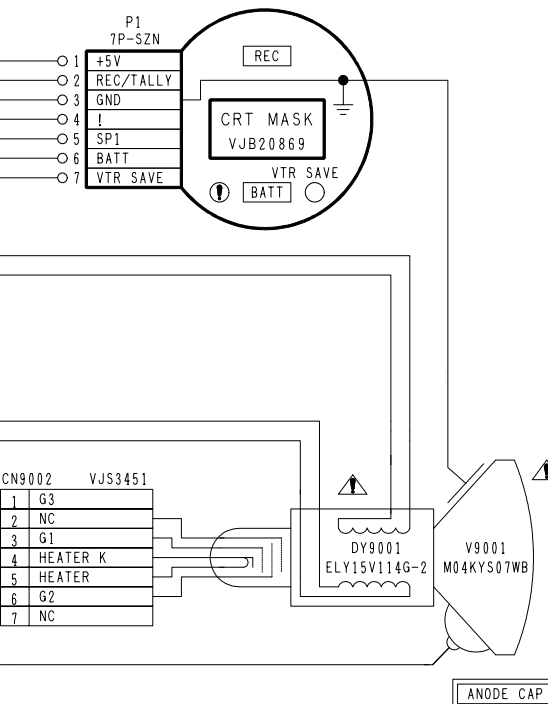
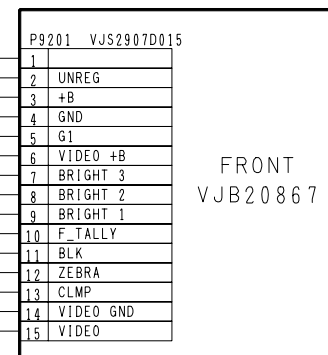
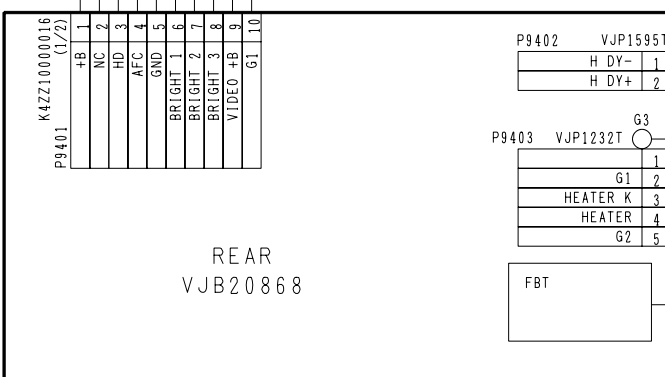
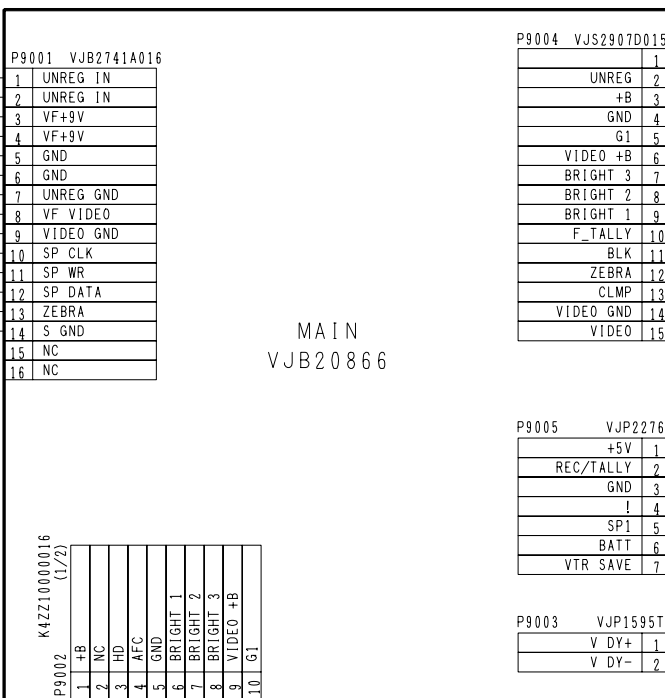
IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED WITH THE MARK HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



警告 印の部品は安全上重要な部品です。

交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。



COMPONENT NAME	EVF INTERFACE	01/01
CIRCUIT BOARD NO.	DRAWING NO.	
VEP	KR9K37(1/1)	
	SCM005	


SECTION 5

CIRCUIT BOARD DIAGRAMS

NOTE:

BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST.

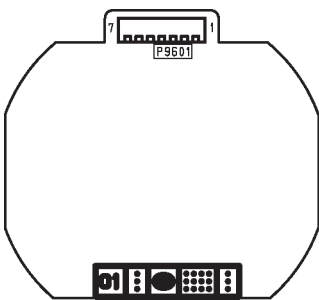
IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

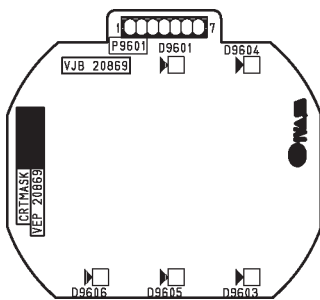
CONTENTS

CRT MASK P.C. BOARD (VEP20869A)	CBA-1
MAIN P.C. BOARD (VEP20866A)	CBA-1
FRONT P.C. BOARD (VEP20867A)	CBA-2
REAR P.C. BOARD (VEP20868A)	CBA-2

CRT MASK C.B.A. (VEP20869A)

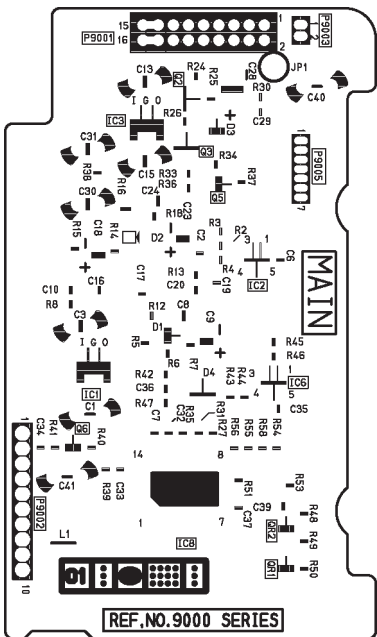


(FOIL SIDE)

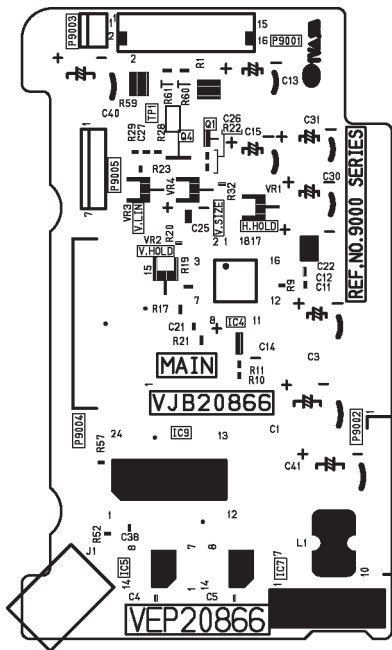


(COMPONENT SIDE)

MAIN C.B.A. (VEP20866A)

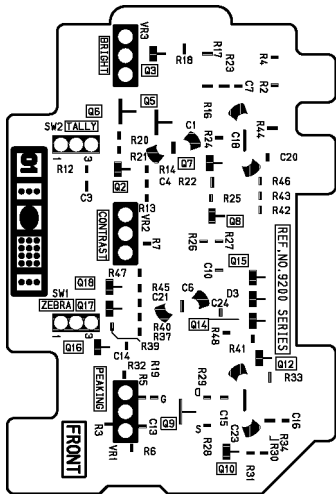


(FOIL SIDE)

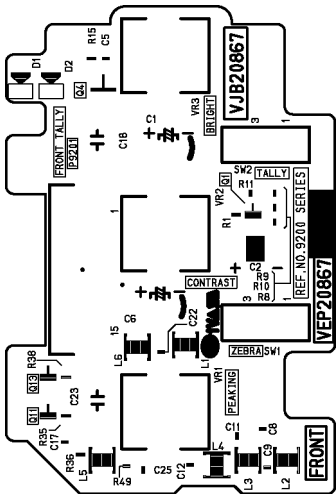


(COMPONENT SIDE)

FRONT C.B.A. (VEP20867A)

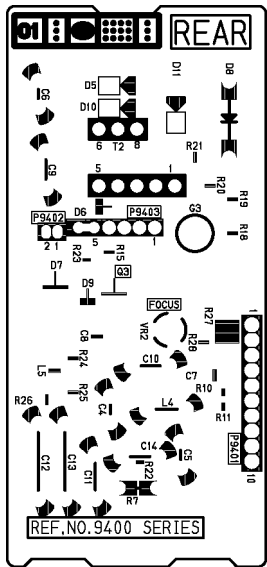


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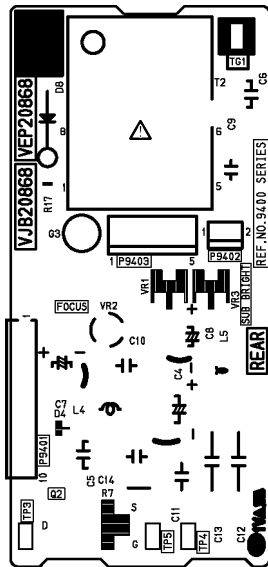


(COMPONENT SIDE)

REAR C.B.A. (VEP20868A)



(FOIL SIDE)



(COMPONENT SIDE)

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警告	
	高圧部分がありますので直接触れないでください。 やけどや感電につながります。
警告 △印の部品は安全上重要な部品です。交換するときは、指定の部品と交換してください。	
備考：高圧回路は、高圧が加わってありますので点検、修理のときは感電しないよう充分ご注意ください。	
部品交換時には、電源プラグを抜いてから行ってください。	
部品番号は、部品使用表で確認の上交換ください。	

SECTION 6

EXPLODED VIEWS & REPLACEMENT PARTS LISTS

Note:

1. *Be sure to make your orders of replacement parts according to this list.
2. Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS (μ F), P= μ μ F.
3. The P.C. Board untils marked with "■" shown below the main assembled parts.
4. The parts marked with Ⓔ on the exploded view show the electric parts.
5. IMPORTANT SAFETY NOTICE
Components identified with the mark Δ have the special characteristics for safety. When replacing any of these components, use only the same type.
6. The marking (RTL) indicates the retention time is limited for this item.
After the diacontinuation of this assembly in production, it will no longer be available.

CONTENTS

Mechanical Component Assembly	PRT-1
Packing Parts Assembly	PRT-3
Electrical Replacement Parts List	PRT-4

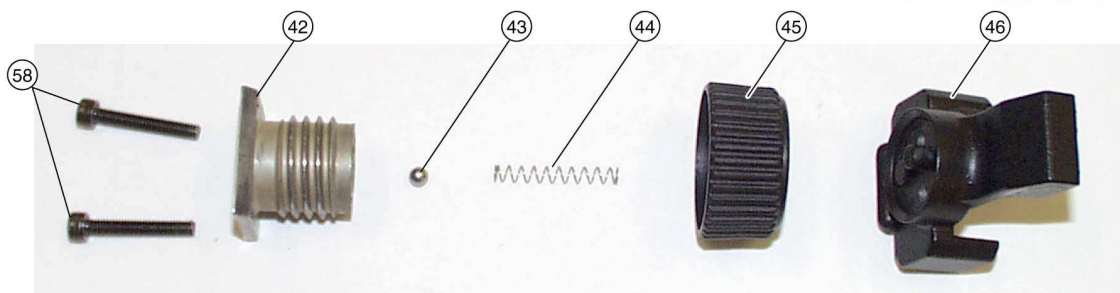
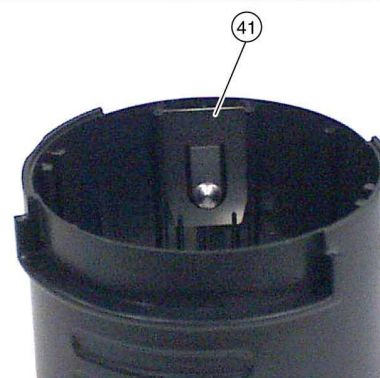
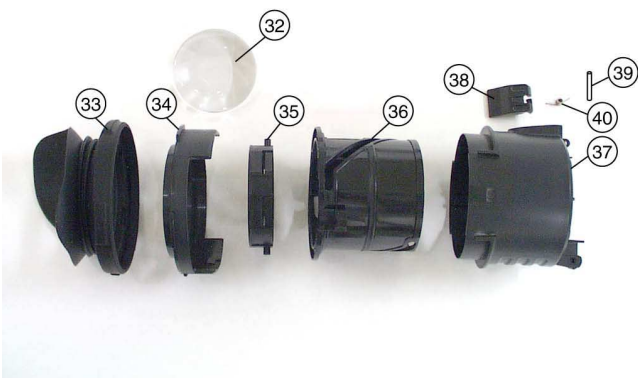
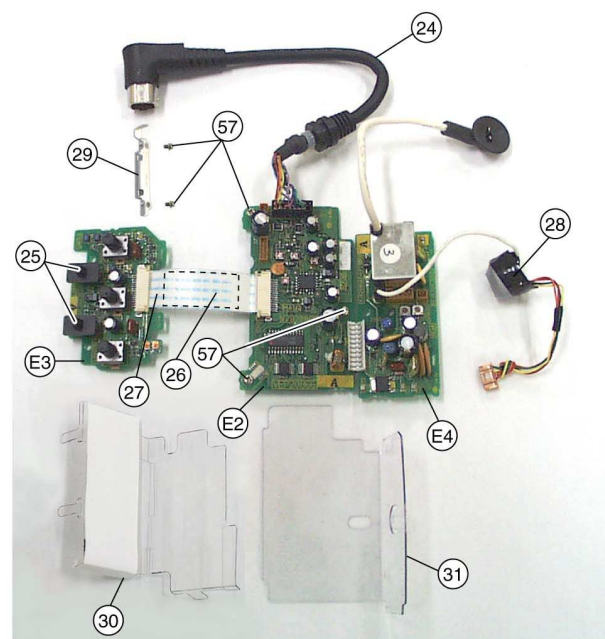
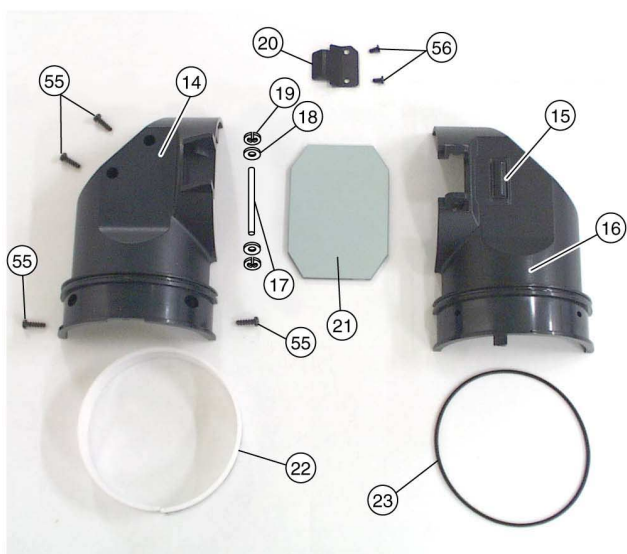
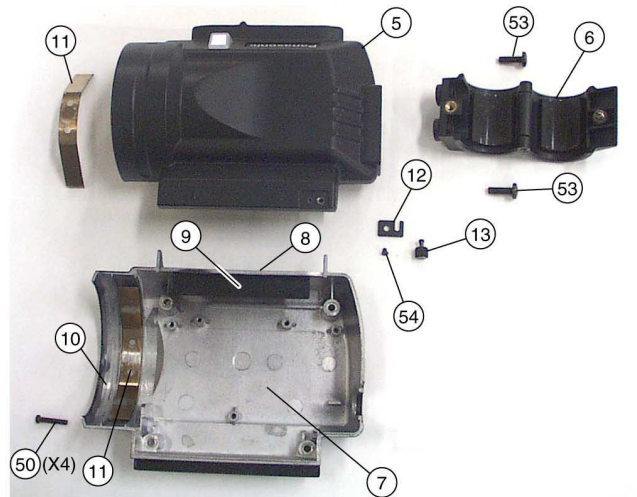
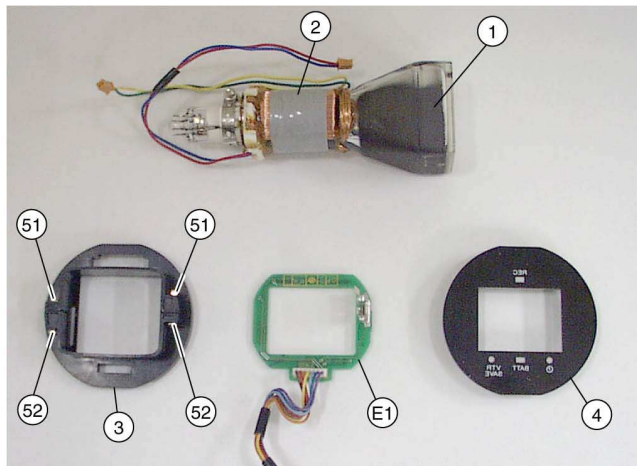
Components identified with the mark have the special characteristics for safety.


When replacing any of these components, use only the same type.

MECHANICAL COMPONENT ASSEMBLY

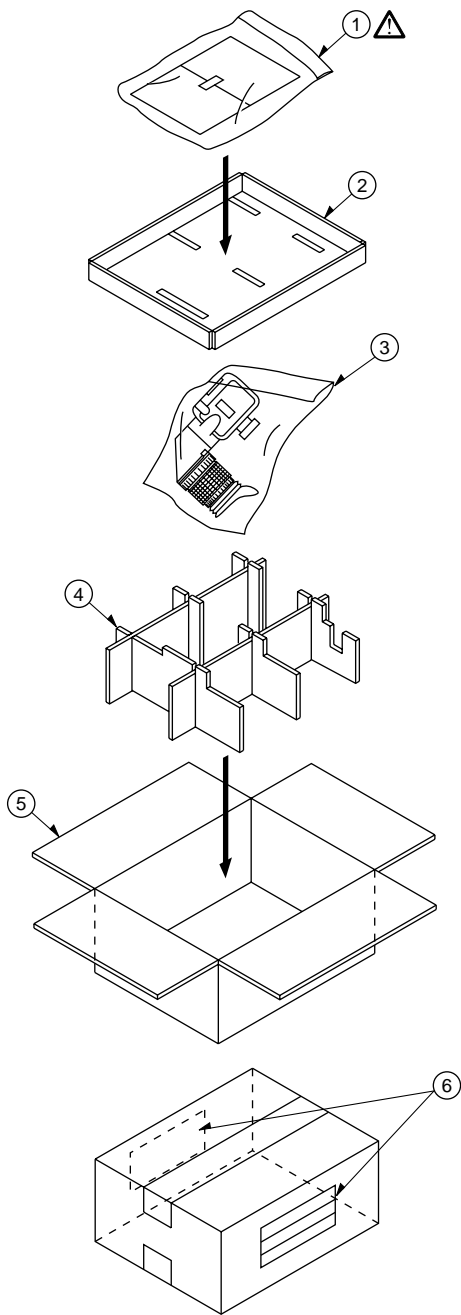
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
△ 1	M04KYS07WB	CRT	1	
△ 2	ELY15V114G	DEFLECTION YOKE	1	
3	VGP5619	ESCUTCHEON	1	
4	VYP8308	ESCUTCHEON ASS'Y	1	
5	VYK9846	TOP CASE ASS'Y	1	
6	VYC0870	MIC HOLDER ASS'Y	1	
7	VYK9847	BOTTOM CASE ASS'Y	1	
8	VGH4524	FRONT SHEET	1	
9	VGFO902	BLIND SHEET	1	
10	VMX3152	SPACER SHEET (A)	2	
11	VMC1513	PLATE SPRING (A)	2	
12	VMP7012	STOPPER PLATE	1	
13	VHD1487	STOPPER SCREW	1	
14	VGP5615	CRT CASE (UPPER)	1	
15	VGP5616	CRT CASE (BOTTOM)	1	
16	VMG1410	RUBBER CUSHION	1	
17	VMS7089	SHAFT	1	
18	VMX3153	SPACER	2	
19	XUC15FP	E-RING	2	
20	VMC1741	PLATE SPRING (B)	1	
21	VDL1223	MIRROR	1	
22	VMX2886	SLIP RING	1	
23	VMG1222	PACKING	1	
24	K1EA209D0003	VF CABLE	1	
25	VGU3364	SLIDE KNOB	2	
26	VMZ3224	PROTECT TAPE	1	
27	VWJ15G2055L0	FLAT CABLE	1	
28	VEE0R99	CRT CABLE	1	
29	VMP6993	P.C.B. HOLDER ANGLE (F)	1	
30	VMZ3223	INSULATION SHEET (A)	1	
31	VMZ3231	INSULATION SHEET (B)	1	
32	VDL1222	LENS	1	
33	VMG1414	EYE CAP	1	
34	VGQ6366	MOUNT RING	1	
35	VDS0162	LENS HOLDER RING	1	
36	VDK0168	LENS HOLDER	1	
37	VGP5617	EYEPEACE HOLDER	1	
38	VGU8954	LOCK KNOB	1	
39	VMS7075	SPRING PIN	1	
40	VMB3567	SPRING	1	
41	VMC1742	PLATE SPRING (C)	1	
42	VGM1816	VF BASE	1	
43	VDB1641	STEEL BALL	1	
44	VMB3570	LOCK SPRING	1	
45	VGP5629	VR LOCK RING	1	
46	VGM1813	VF ATTACHMENT	1	
50	XSB26+10FZ	SCREW	4	
51	XSB2+12	SCREW	2	
52	XNG2E	NUT	2	
53	XSB4+12FXKS	SCREW	2	
54	XQN2+B25FZ	SCREW	1	
55	XTN26+8GFZ	SCREW	4	
56	XQN2+BJ4FZ	SCREW	2	
57	XYN26+K5	SCREW	5	
58	XVE4B25FZ	SCREW	2	
E1	VEP20869A	CRT MASK C.B.A.	1	
E2	VEP20866A	MAIN C.B.A.	1	
E3	VEP20867A	FRONT C.B.A.	1	
E4	VEP20868A	REAR C.B.A.	1	

MECHANICAL COMPONENT ASSEMBLY







Components identified with the mark  have the special characteristics for safety.
When replacing any of these components, use only the same type.

PACKING PARTS ASSEMBLY



PACKING PARTS ASSEMBLY

Components identified with the mark  have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref No.	Part No.	Part Name & Description	Pcs	Remarks	Ref No.	Part No.	Part Name & Description	Pcs	Remarks
 1	VQT9454	OPERATING INSTRUCTIONS	1	FOR AG-VF5P					
 1	VQT9455	OPERATING INSTRUCTIONS	1	FOR AG-VF5E					
 1	VQT9456	OPERATING INSTRUCTIONS	1	FOR AG-VF5MC					
2	VPN5665	PAD	1						
3	VPF0210	POLYETHYLENE BAG	1	FOR AG-VF5P					
3	VPF0676	POLYETHYLENE BAG	1	FOR AG-VF5E/MC					
4	VPN5667	CUSHION	1						
5	VPG0A97	PACKING CASE	1						
6	VQL9822	PACKING LABEL	1	FOR AG-VF5P					
6	VQL0A24	PACKING LABEL	1	FOR AG-VF5E/MC					

ELECTRICAL REPLACEMENT PARTS LIST

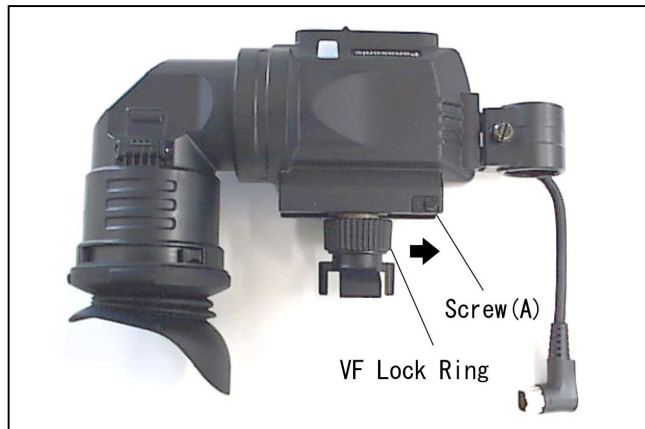
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■ E1	VEP20869A	CRT MASK C.B.A.	1	(RTL)	D9004	MA3047	DIODE	1	
■ E2	VEP20866A	MAIN C.B.A.	1	(RTL)	IC9001	AN77L05M	IC	1	
■ E3	VEP20867A	FRONT C.B.A.	1	(RTL)	IC9002	TC7S04F	IC	1	C0JBAB000169
■ E4	VEP20868A	REAR C.B.A.	1	(RTL)	IC9003	AN77L08M	IC	1	
					IC9004	HA11423MP	IC	1	
					IC9005	TVHC164FT	IC	1	
					IC9006	TC7S32F	IC	1	C0JBAE000084
					IC9007	TVHC08FT	IC	1	
					IC9008	C0JBAB000163	IC	1	
					IC9009	M66311FP	IC	1	C0HBZ0000021
					J1	VJR1094	TERMINAL	1	
					L9001	VLQ0417	COIL 10UH	1	
					P9001	VJP2741A016	CONNECTOR (MALE) 16P	1	K1KA16A00139
					P9002	K4ZZ10000016	TERMINAL	1	
■ E1	VEP20869A	CRT MASK C.B.A.	1	(RTL)	P9003	ILY2PS15T2	CONNECTOR	1	
					P9004	VJS2907D015	CONNECTOR (FEMALE)	1	K1MN15B00011
					P9005	VJP2276	CONNECTOR (MALE)	1	
D9601	BR1101W330	DIODE	1	B3AAB0000043	Q9001	2SD1819A-R	TRANSISTOR	1	
D9603	AA1101W330	DIODE	1	B3ADB0000018	Q9002	2SC3624	TRANSISTOR	1	
D9605	BR1101W330	DIODE	1	B3AAB0000043	Q9004	B1ADCC000008	TRANSISTOR	1	
D9606	AA1101W330	DIODE	1	B3ADB0000018	Q9005,06	2SD1819A-R	TRANSISTOR	2	
		MISCELLANEOUS			QR9001	UN5214	TRANSISTOR-RESISTOR	1	
	VMP5140	CRT EARTH PLATE	1		QR9002	UN511L	TRANSISTOR-RESISTOR	1	
					R9001	ERJ12YJR68	M.RESISTOR CH 1/2W 0.68	1	
					R9002	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
					R9003	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
					R9004	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
■ E2	VEP20866A	MAIN C.B.A.	1	(RTL)	R9005	ERJ3GEYJ474	M.RESISTOR CH 1/16W 470K	1	
					R9006	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
					R9007	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
C9001	EEUFC1C331	E.CAPACITOR 16V 330U	1		R9008	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
C9002	ECUX1H150JCV	C.CAPACITOR CH 50V 15P	1		R9009	ERJ3GEYJ683	M.RESISTOR CH 1/16W 68K	1	
C9003	EEAFC0J121	E.CAPACITOR 6.3V 120U	1		R9010	ERJ3GEYJ100	M.RESISTOR CH 1/16W 10	1	
C9004-07	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	4		R9011	ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
C9008	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1		R9012	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
C9009	ECST1CY105	C.CAPACITOR CH 16V 1U	1		R9013	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
C9010	ECUX1E223KBV	C.CAPACITOR CH 25V 0.023U	1		R9014	ERJ3GEYJ121	M.RESISTOR CH 1/16W 120	1	
C9011	ECUX1H682KBV	C.CAPACITOR CH 50V 6800P	1		R9015	ERJ3GEYJ682	M.RESISTOR CH 1/16W 6.8K	1	
C9012	ECHU1C472JB	P.CAPACITOR 16V 4700P	1		R9016	ERJ6RBD123	M.RESISTOR CH 1/10W 12K	1	
C9013	EEAFC1C560	E.CAPACITOR 16V 56U	1		R9017	ERJ6RBD472	M.RESISTOR CH 1/10W 4.7K	1	
C9014	ECST1CX106	T.CAPACITOR CH 16V 10U	1		R9018	ERJ3GEYJ152	M.RESISTOR CH 1/16W 1.5K	1	
C9015	EEAFC1C560	E.CAPACITOR 16V 56U	1		R9019	ERJ6RBD822	M.RESISTOR CH 1/10W 8.2K	1	
C9016	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	1		R9020	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
C9017	ECUX1H331JCV	C.CAPACITOR CH 50V 330P	1		R9022	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
C9018	ECST1CY105	C.CAPACITOR CH 16V 1U	1		R9023	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
C9019	ECUX1C473KBV	C.CAPACITOR CH 16V 0.047U	1		R9024	ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
C9020	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	1		R9025	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
C9021	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1		R9026	ERJ3GEYJ4R7	M.RESISTOR CH 1/16W 4.7	1	
C9022	ECST1CC226	T.CAPACITOR CH 16V 22U	1		R9027	ERJ3GEYJ822	M.RESISTOR CH 1/16W 8.2K	1	
C9023	ECST1CY105	C.CAPACITOR CH 16V 1U	1		R9028	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
C9024	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1		R9029	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
C9025	ECST1CY335	T.CAPACITOR CH 16V 3.3U	1		R9030	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
C9026	ECUX1H181JCV	C.CAPACITOR CH 50V 180P	1		R9031	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
C9027	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	1		R9032	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
C9028	ECST1CX106	T.CAPACITOR CH 16V 10U	1		R9033	ERJ3GEYJ150	M.RESISTOR CH 1/16W 15	1	
C9029	ECUX1H272KBV	C.CAPACITOR CH 50V 2700P	1		R9034	ERJ3GEYJ1R0	M.RESISTOR CH 1/16W 1	1	
C9030,31	EEAFC0J121	E.CAPACITOR 6.3V 120U	2		R9035	ERJ3GEYJ622	M.RESISTOR CH 1/16W 6.2K	1	
C9032	ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1		R9036	ERJ3GEYJ470	M.RESISTOR CH 1/16W 47	1	
C9033	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1		R9037	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
C9034,35	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	2		R9038	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
C9036	ECUX1H331JCV	C.CAPACITOR CH 50V 330P	1		R9039	ERJ3GEYJ912	M.RESISTOR CH 1/16W 9.1K	1	
C9037	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1		R9040	ERJ3GEYJ512	M.RESISTOR CH 1/16W 5.1K	1	
C9038,39	ECUX1E104ZV	C.CAPACITOR CH 25V 0.1U	2		R9041	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
C9040	EEUFC1J680	E.CAPACITOR 63V 68U	1		R9042	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
					R9043	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
D9001	MA142K	DIODE	1		R9044	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
D9002	RD10UMB1	DIODE	1		R9045	ERJ3RBD103	M.RESISTOR CH 1/16W 10K	1	
D9003	MA3J14300L	DIODE	1		R9046	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R9047	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9048-50	ERJ3RBD271	M.RESISTOR CH 1/16W 270	3	
R9051	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R9052	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R9053	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R9054-56	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	3	
R9059	ERJ12RQFR33	M.RESISTOR CH 1/2W 0.33	1	
R9060,61	K5H5011A0004	FUSE	2	
TP9001	EYF6CU	TEST POINT	1	
VR9001,02	EVM7JGA00B53	V.RESISTOR 5K	2	
VR9003	EVM7JGA00B52	V.RESISTOR 500	1	
VR9004	EVM7JGA00B22	V.RESISTOR 200	1	
		MISCELLANEOUS		
	VWJ15G2055L0	FLAT CABLE	1	
■ E3	VEP20867A	FRONT C.B.A.	1 (RTL)	
C9201	EEAFC1C560	E.CAPACITOR 16V 56U	1	
C9202	ECST1AC226	T.CAPACITOR CH 10V 22U	1	
C9203	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C9205	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
C9206	EEAFC1C560	E.CAPACITOR 16V 56U	1	
C9207	ECUX1H090DCV	C.CAPACITOR CH 50V 9P	1	
C9208,09	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	2	
C9210	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1	
C9211	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	1	
C9212	ECUX1H270JCV	C.CAPACITOR CH 50V 27P	1	
C9216,17	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2	
C9218	ECQV1104JM	P.CAPACITOR 100V 0.1U	1	
C9221	ECUX1H121JCV	C.CAPACITOR CH 50V 120P	1	
C9222	ECUX1H270JCV	C.CAPACITOR CH 50V 27P	1	
C9223	ECQV1104JM	P.CAPACITOR 100V 0.1U	1	
D9201,02	B3AAB0000103	DIODE	2	
D9203	MA3J14300L	DIODE	1	
L9201-04	VLQ0163J220	COIL 22UH	4	
L9205,06	ERJ8GEY0R00	M.RESISTOR CH 1/8W 0	2	
P9201	VJS2907D015	CONNECTOR (FEMALE)	1 K1MN15B00011	
Q9201-03	2SD1819A-R	TRANSISTOR	3	
Q9204	2SC3624	TRANSISTOR	1	
Q9206	B1ADCC0000008	TRANSISTOR	1	
Q9207	2SD1819A-R	TRANSISTOR	1	
Q9208	2SB1218A-R	TRANSISTOR	1	
Q9210	2SB1218A-R	TRANSISTOR	1	
Q9211	2SC4181	TRANSISTOR	1	
Q9212	2SD1821-R	TRANSISTOR	1	
Q9213	2SC4181	TRANSISTOR	1	
Q9214	2SD1821-R	TRANSISTOR	1	
Q9215	2SB1220-R	TRANSISTOR	1	
Q9216	2SB1218A-R	TRANSISTOR	1	
Q9217,18	2SC4181	TRANSISTOR	2	
R9201	ERJ6RBD681	M.RESISTOR CH 1/10W 680	1	
R9202	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9207	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R9208,09	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R9210	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9211	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	1	
R9212	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9213	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R9214	ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	1	
R9215	ERJ6RBD223	M.RESISTOR CH 1/10W 22K	1	
R9216	ERJ6RBD152	M.RESISTOR CH 1/10W 1.5K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R9217	ERJ6RED124	M.RESISTOR CH 1/10W 120K	1	
R9218	ERJ6RBD104	M.RESISTOR CH 1/10W 100K	1	
R9219	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9220	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9221	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R9222	ERJ6RBD102	M.RESISTOR CH 1/10W 1K	1	
R9223	ERJ6RBD681	M.RESISTOR CH 1/10W 680	1	
R9224	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R9225	ERJ3RBD471	M.RESISTOR CH 1/16W 470	1	
R9226	ERJ3RBD102	M.RESISTOR CH 1/16W 1K	1	
R9227	ERJ3RBD101	M.RESISTOR CH 1/16W 100	1	
R9228	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9229,30	ERJ3RBD302	M.RESISTOR CH 1/16W 3K	2	
R9231	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9232	ERJ3RBD102	M.RESISTOR CH 1/16W 1K	1	
R9233,34	ERJ6RBD562	M.RESISTOR CH 1/10W 5.6K	2	
R9235	ERJ6RBD912	M.RESISTOR CH 1/10W 9.1K	1	
R9236	ERJ6RBD222	M.RESISTOR CH 1/10W 2.2K	1	
R9237	ERJ3RBD222	M.RESISTOR CH 1/16W 2.2K	1	
R9238	ERJ6RBD561	M.RESISTOR CH 1/10W 560	1	
R9239	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R9240	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	1	
R9241	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R9242,43	ERJ3GEYJ680	M.RESISTOR CH 1/16W 68	2	
R9244	ERJ6RBD104	M.RESISTOR CH 1/10W 100K	1	
R9245	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R9246	ERJ3RBD473	M.RESISTOR CH 1/16W 47K	1	
R9247	ERJ3RBD392	M.RESISTOR CH 1/16W 3.9K	1	
SW9201,02	VSS0186	SWITCH	2 K0D112A00047	
VR9201	EVUFRA004C23	V.RESISTOR 2K	1	
VR9202	EVUFRA004B13	V.RESISTOR 1K	1	
VR9203	EVUFRA004B55	V.RESISTOR 500K	1	
■ E4	VEP20868A	REAR C.B.A.	1 (RTL)	
C9404	EEUFC1C331	E.CAPACITOR 16V 330U	1	
C9405	VCF0066J182	P.CAPACITOR 160V 1800P	1 F0A2C182A001	
C9406	VCF0066J102	P.CAPACITOR 160V 1000P	1 F0A2C102A001	
C9407	VCEA1DAP220	E.CAPACITOR 20V 22U	1 F2D1D2200003	
C9408	VCEA0JAP330	C.CAPACITOR 6.3V 33P	1 F2D0J330A002	
C9409,10	ECKD3A472MEH	C.CAPACITOR 1KV 4700P	2	
C9411	VCF0066J223	P.CAPACITOR 160V 0.022U	1 F0A2C223A001	
C9412,13	ECKD2H103MD	C.CAPACITOR 500V 0.01U	2	
C9414	ECQV1104JM	P.CAPACITOR 100V 0.1U	1	
D9404	MA142K	DIODE	1	
D9405	EC11FS2	DIODE	1	
D9406	MA142K	DIODE	1	
D9407	SB05-05CP-TB	DIODE	1 B0JCBF000001	
D9408	SHV-03	DIODE	1 B0EBEX000001	
L9404	VLQEL06F101J	COIL 100UH	1 G0C101J00003	
L9405	ELH5L3112	COIL	1	
P9402	ILY2PS15T2	CONNECTOR	1	
P9403	K1KA05A00102	CONNECTOR (MALE)	1	
Q9402	2SK1954Z	TRANSISTOR	1	
R9407	ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R9410	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R9411	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	1	
R9415	ERJ6RED180	M.RESISTOR CH 1/10W 18	1	
R9417	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R9418-20	ERJ6GEYJ105	M.RESISTOR CH 1/10W 1M	3	
R9421	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R9422	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R9423	ERJ3RBD473	M.RESISTOR CH 1/16W 47K	1	

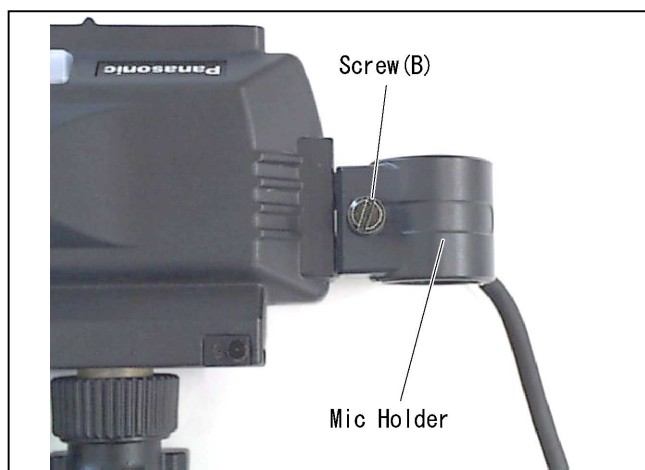
1. Removal of Attachment Unit

1. Loosen VF lock ring, and pull out VF lock ring to the direction of the arrow after loosening 1 screw (A).

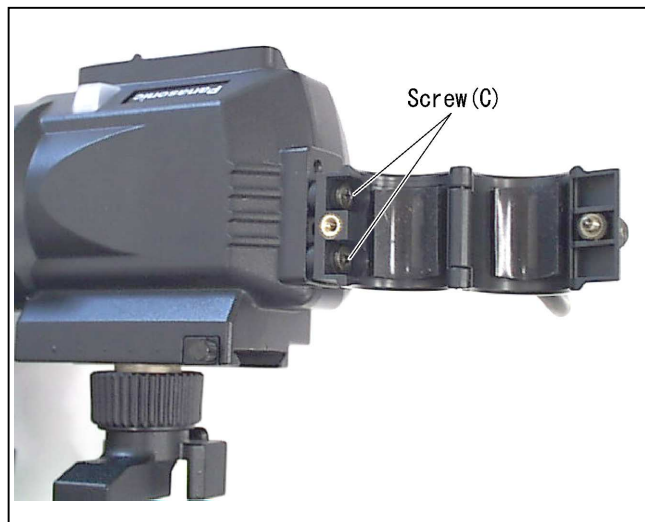


2. Removal of Mic Holder

1. Loosen 1 screw (B), and open Mic Holder.

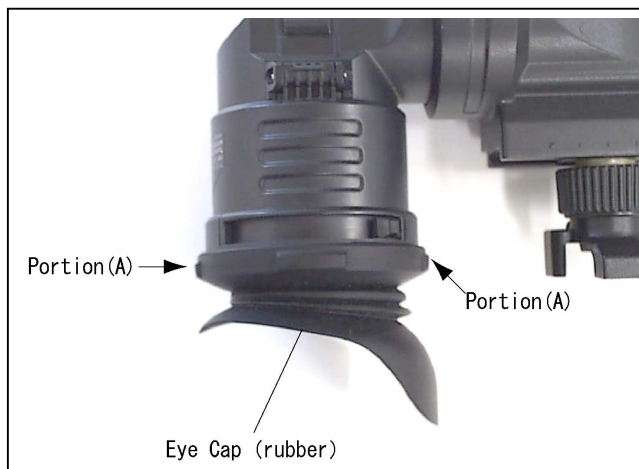


2. Remove 2 screws (C) and the Mic Holder.



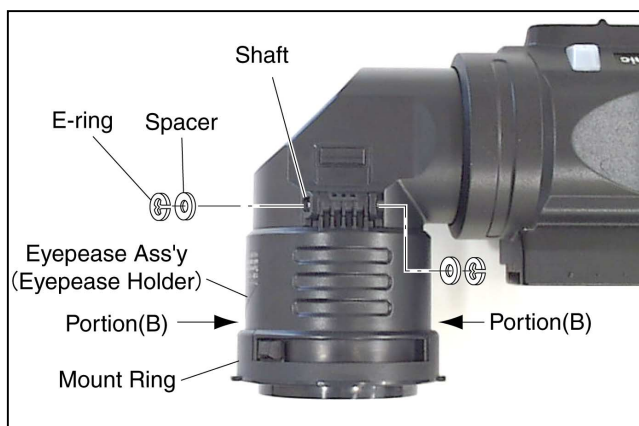
3. Removal of Eye Cap (rubber)

1. Remove Eye Cap by turning over the portion (A).
Note: Be careful not to damage the rubber.

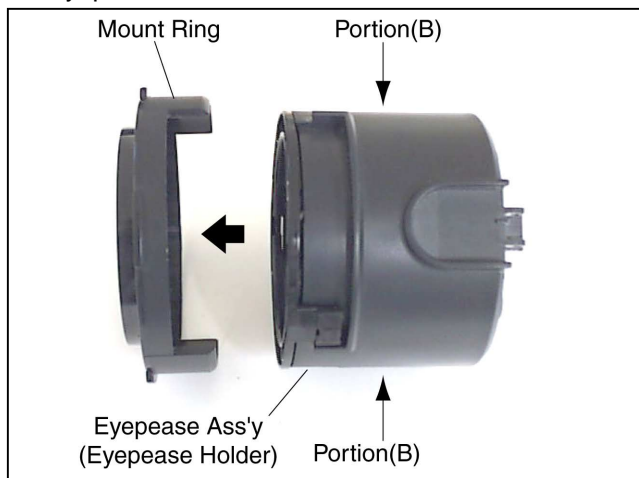


4. Removal of Eyepiece Ass'y (Eyepiece Holder)

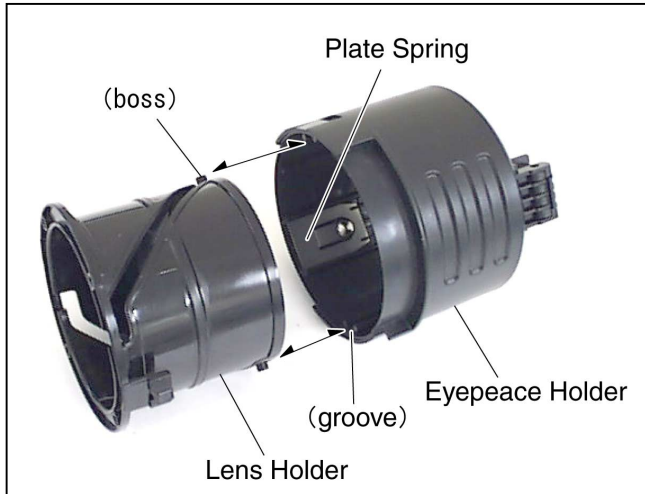
1. Remove E-ring with the Spacer and Eyepiece Ass'y (Eyepiece Holder) after pulling out shaft.



2. Remove Mount Ring by pushing the portion (B) of Eyepiece Holder.

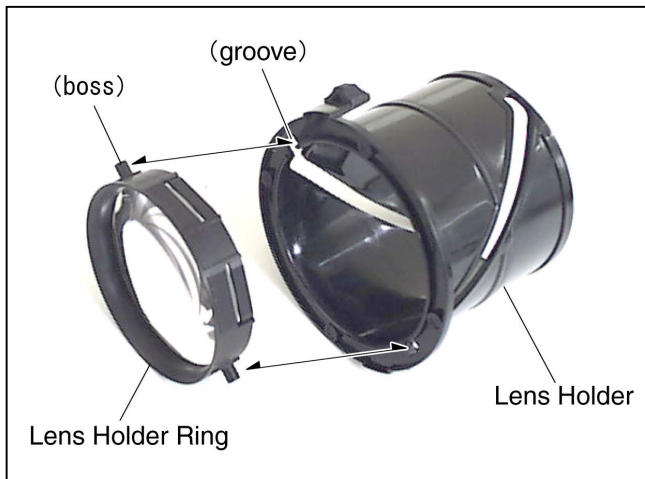


3. Remove Lens Holder and Plate Spring from Eyepiece Holder.



Note: When installing, set Plate Spring into groove of Eyepiece Holder as shown in the figure, and then install Lens Holder Ring by setting its bosses (2 place) into groove of Eyepiece Holder.

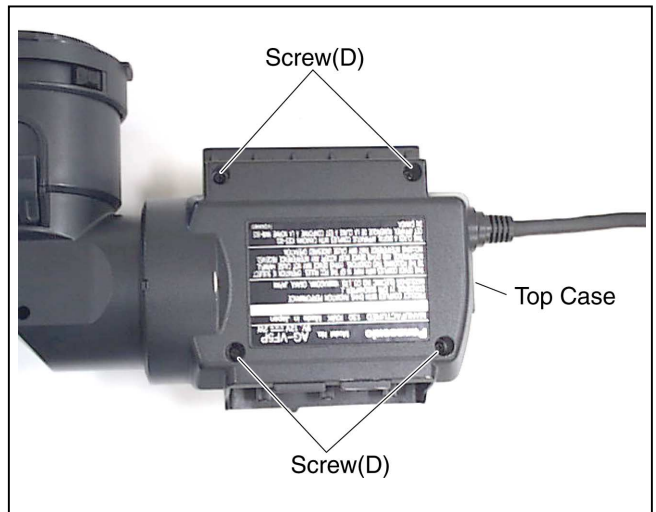
4. Along groove of Lens Holder, slide Lens Holder Ring clockwise and remove it.



Note: When installing, make sure that bosses of Lens Holder Ring are in the side of the Lens Holder as shown in the figure. After confirmation, install the Lens Holder Ring by setting its bosses into groove of Lens Holder.

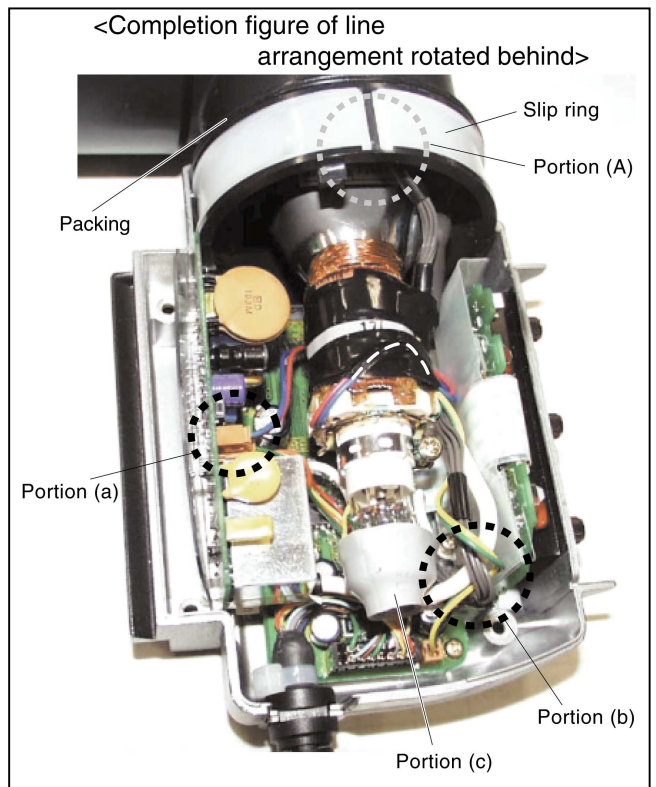
5. Removal of Top Case

1. Loosen 4 screws (D), and then remove Top Case.



6. Removal of the CRT Ass'y

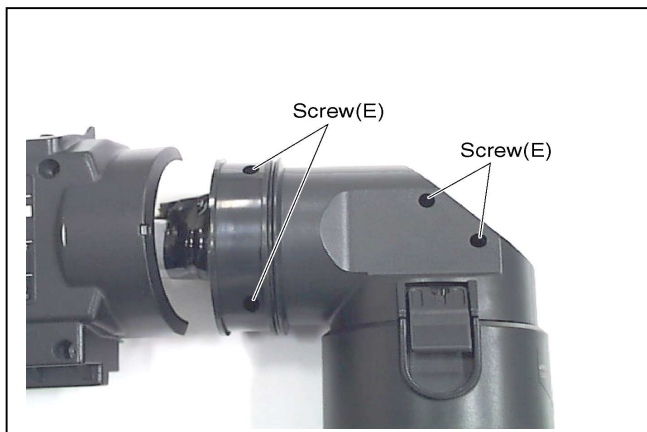
1. Pull out connectors (2 for the portion a,b each) on C.B.A. and CRT socket (portion C)



2. Remove Slip Ring and Packing from CRT case.

Note: When install Slip Ring, put the projection of A portion into groove until it clicks.

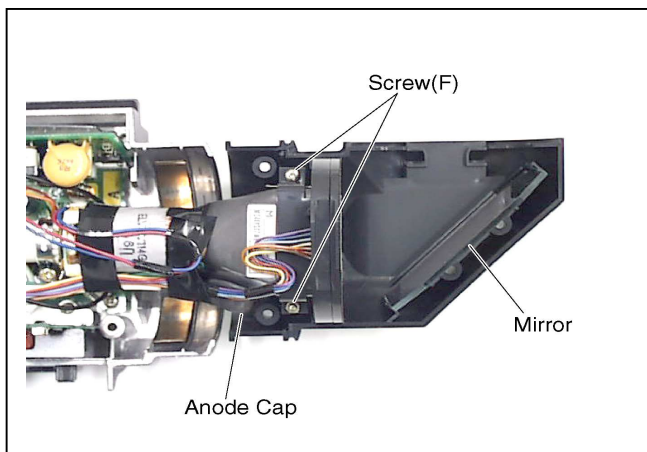
3. Loosen 4 screws (E), and then remove CRT case.



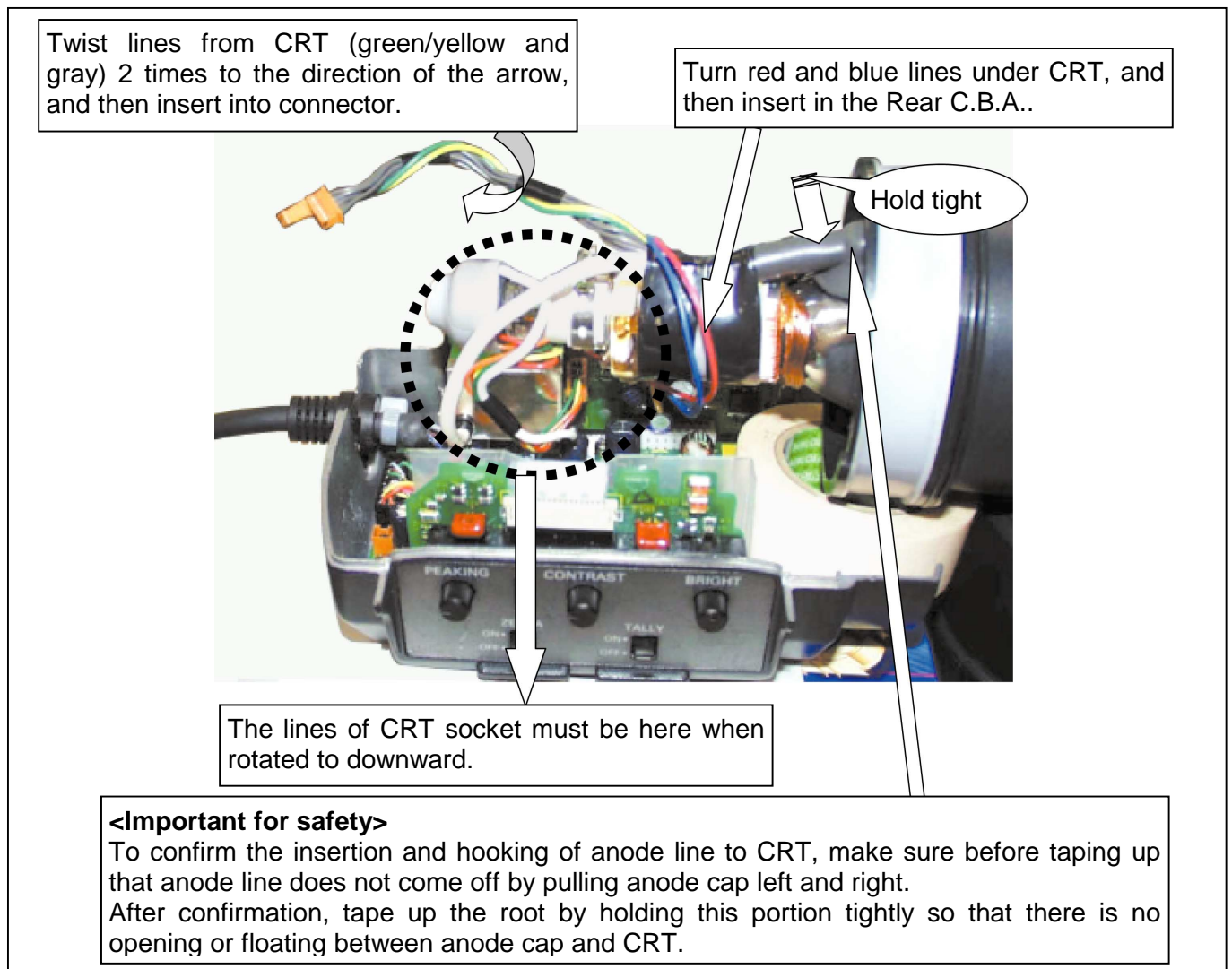
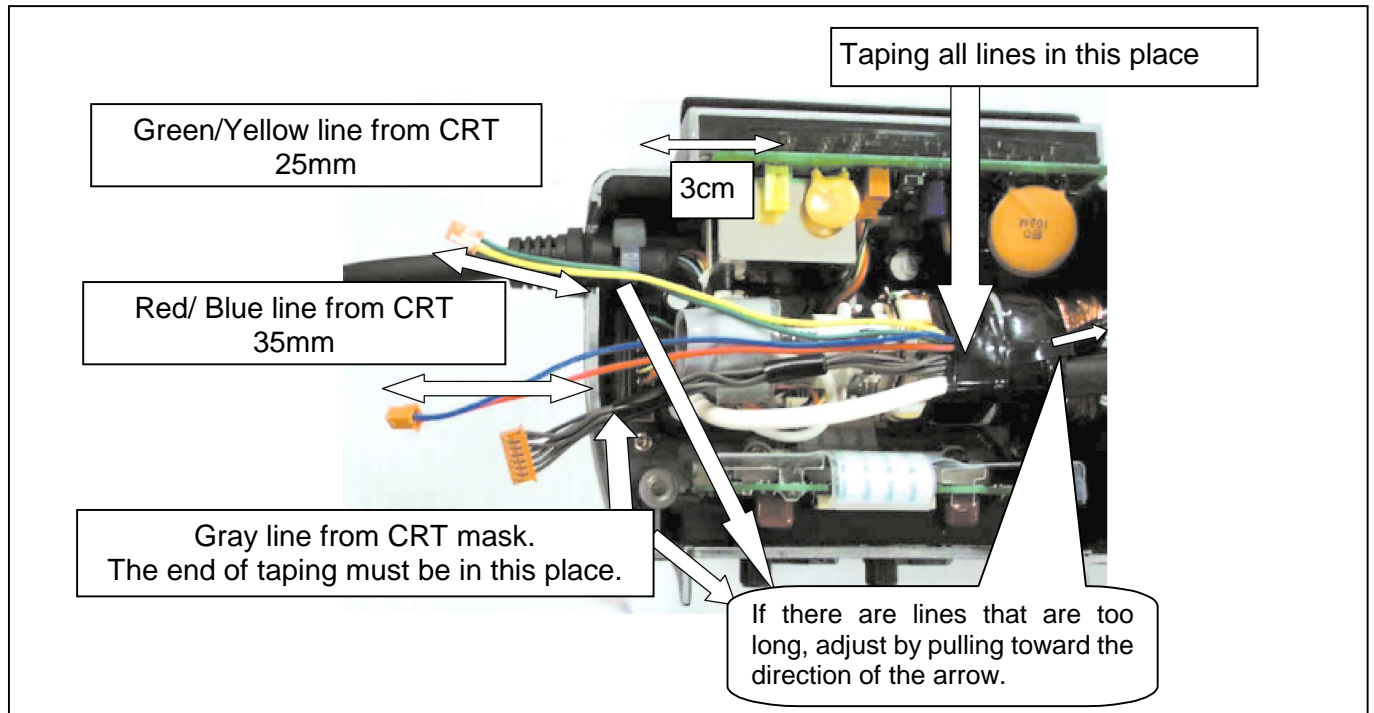
Note: Remove CRT case so as not to drop the mirror installed in CRT case.

Note: Be careful not to put any fingerprints on the mirror.

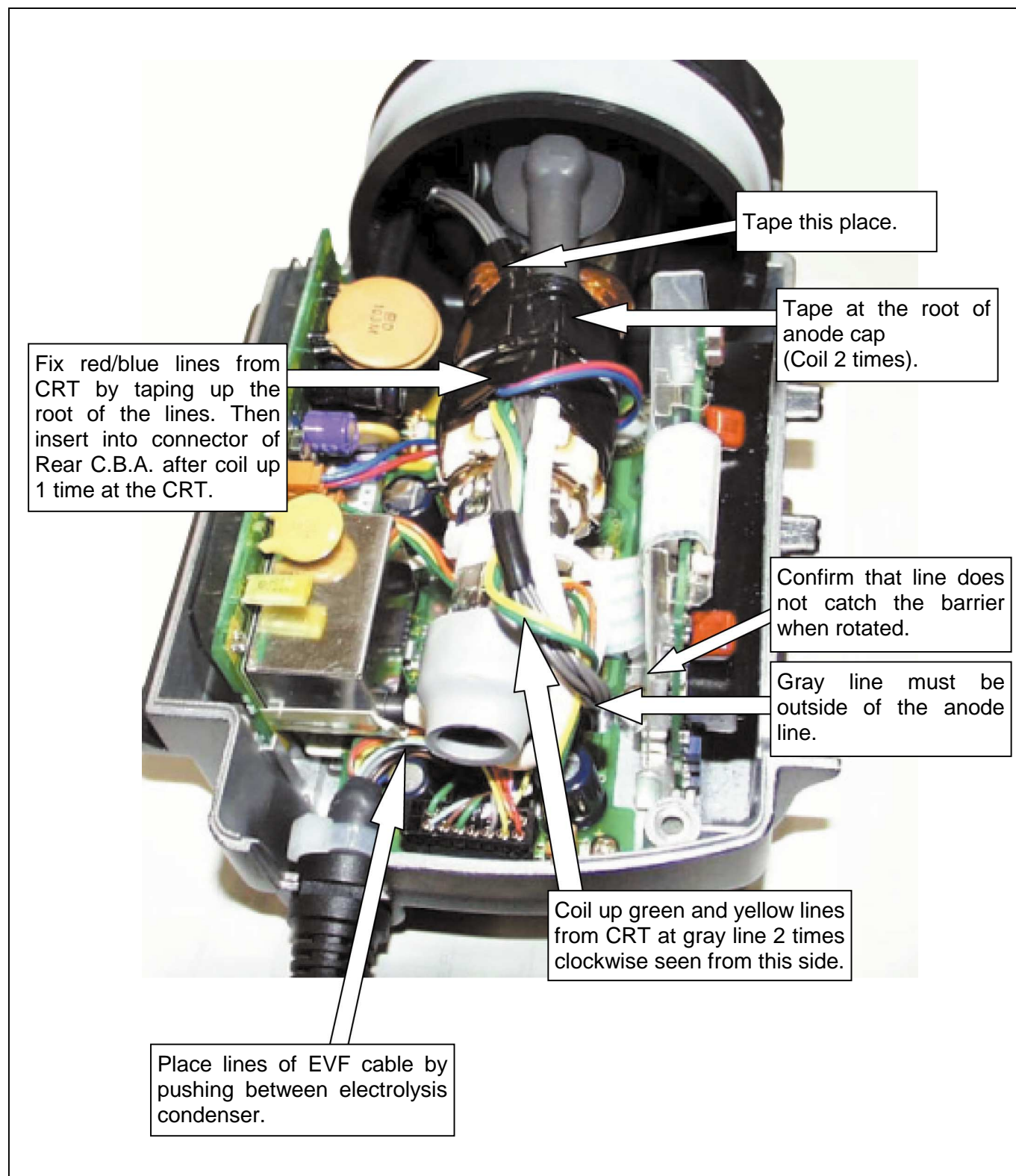
4. Remove anode cap from CRT.
5. Loosen 2 screws (F), and then remove CRT from Escutcheon Ass'y.



<Caution for the installation of the CRT Ass'y>



<Lines binding completed figure at rotating eyepiece to downward>



Electrical Adjustment Procedures

<Recommended Measurement Equipment (M.EQ) & Servicing Fixtures>

No.	NAME	Model	Remark
1	Digital Volt Meter		
2	Frequency Counter		
3	Registration Chart	VFK0673	
4	Screwdriver for Adjustment		*1
5	Camera (-Recorder)	AJ-D410A AG-DVC200	*2
6	Monitor		*3

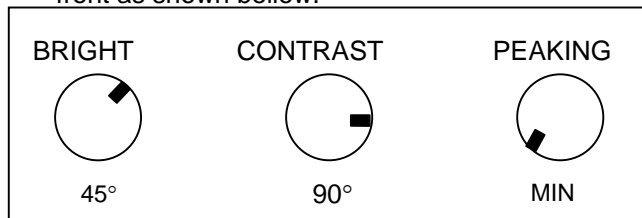
*1: Please use a plastic type screwdriver.

*2: Supply a power and video signal to the Electric Viewfinder.

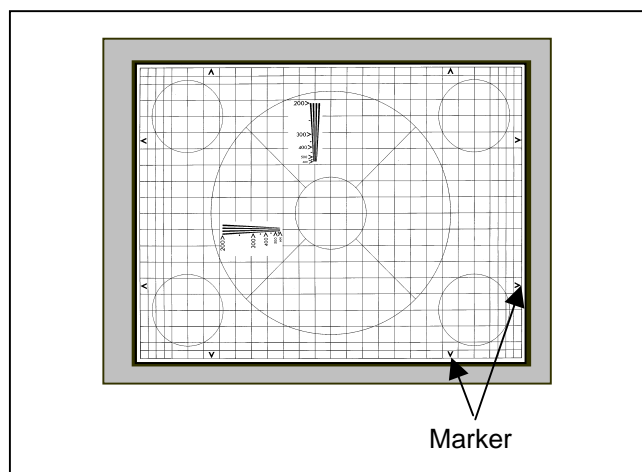
*3: Connect the video out of Camera (-Recorder).

<Preparation of adjustment>

- Before start the adjustment, Set BRIGHT, CONTRAST, and PEAKING VR position on the front as shown bellow.



- Connect the Video OUT or CAM OUT to the monitor.
- Set a monitor to under scanning mode.
- Aim a camera (-recorder) at the "Registration chart", and adjust the lens focus by the monitor screen.
- Adjust Zoom and camera position so that each marker on the chart is just fit on the monitor screen as shown bellow.



1. H HOLD Adjustment

Board	MAIN
TP	EVF Screen
Adjust	VR9001 [H HOLD]
Input	Camera color bar
M.EQ	-----
Spec.	Picture is locked horizontally

- Set a camera (-recorder) to **Color Bar** mode.
- Confirm that picture on the EVF screen is locked horizontally.
If it is not, adjust **VR9001**. Then again confirm that picture on the EVF screen get stable immediately after camera power is turned on.

2. V HOLD Adjustment

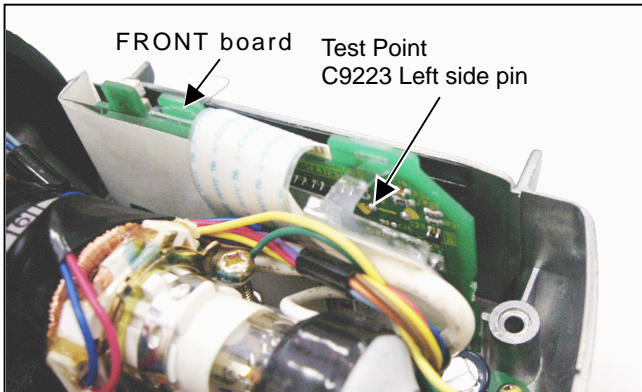
Board	MAIN
TP	EVF Screen
Adjust	VR9002 [V HOLD]
Input	Camera color bar
M.EQ	-----
Spec.	Picture is locked vertically

- Set a camera (-recorder) to **Color Bar** mode.
- Confirm that picture on the EVF screen is locked vertically.
If it is not, adjust **VR9002**. Then again confirm that picture on the EVF screen get stable immediately after camera power is turned on.

3. VIDEO +B Adjustment

Board	FRONT, REAR
TP	C9223 left side pin (FRONT board)
Adjust	VR9401 [VIDEO+B] (REAR board)
Input	Camera color bar
M.EQ	Digital Volt Meter
Spec.	45.5V+/-0.2V

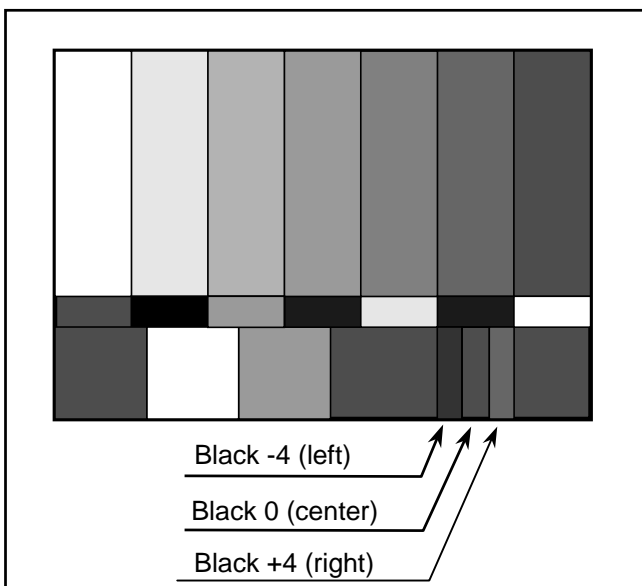
1. Adjust VR9401 so that DC voltage is in the specification.



4. Sub Brightness Adjustment

Board	REAR
TP	EVF Screen
Adjust	VR9403 [SUB BRIGHT]
Input	Camera color bar (SMPTE color bar / setup 0%)
M.EQ	-----
Spec	as shown in figure

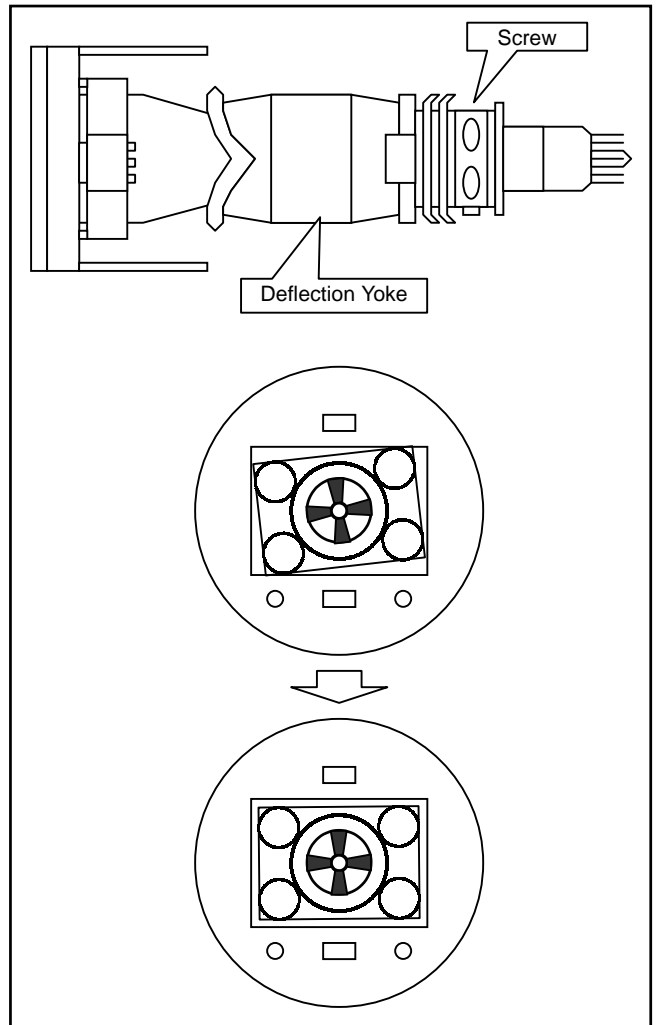
1. Set setup level of a camera (-recorder) to 0%.
2. Confirm the Black reference portion indicated by arrow.
3. Adjust **VR9403** so that the Black +4 (right) is slightly lighted and the Black 0 (center) and Black -4 (left) become black.
4. Set back the setup level of a camera (-recorder) to original setting.



5. Rotation Adjustment

Board	-----
TP	EVF Screen
Adjust	Deflection Yoke
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

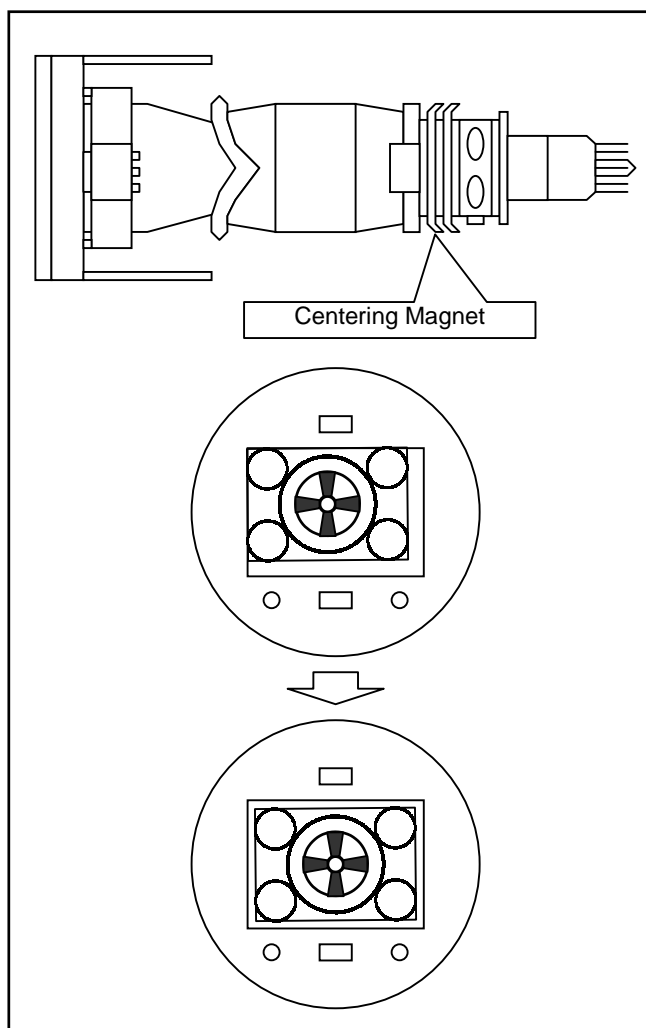
1. Loosen screw and rotate **deflection yoke** so that picture stands horizontally.
2. Tighten screw again



6. Centering Adjustment

Board	-----
TP	EVF Screen
Adjust	Centering Magnet
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

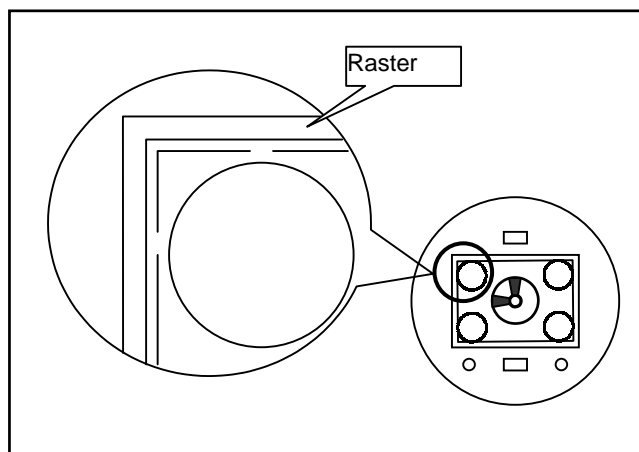
1. Rotate **Centering Magnet** so that picture stands at the center.



7. Picture Size Adjustment

Board	MAIN
TP	EVF Screen
Adjust	VR9004 [V SIZE]
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

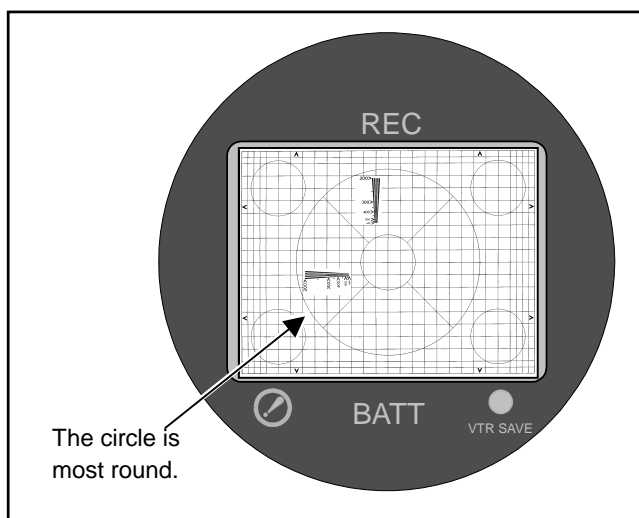
1. Adjust **VR9004** so that picture size (H:V) become 4:3. The width of raster portion around the picture should be same.



8. Linearity Adjustment

Board	MAIN
TP	EVF Screen
Adjust	VR9003 [V LIN]
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

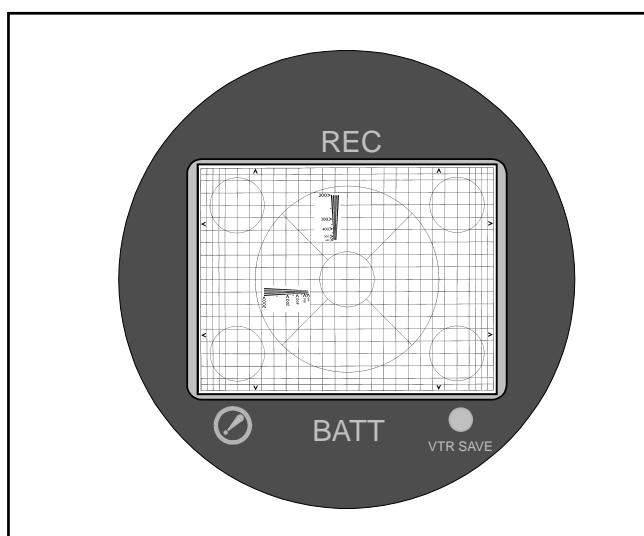
1. Adjust **VR9003** so that the "Circle" of registration chart is most round.



9. Balance Adjustment

Board	MAIN
TP	EVF Screen
Adjust	Deflection Yoke Centering Magnet VR9003 [V LIN] VR9004 [V SIZE]
Input	Registration Chart
M.EQ	-----
Spec.	as shown in figure

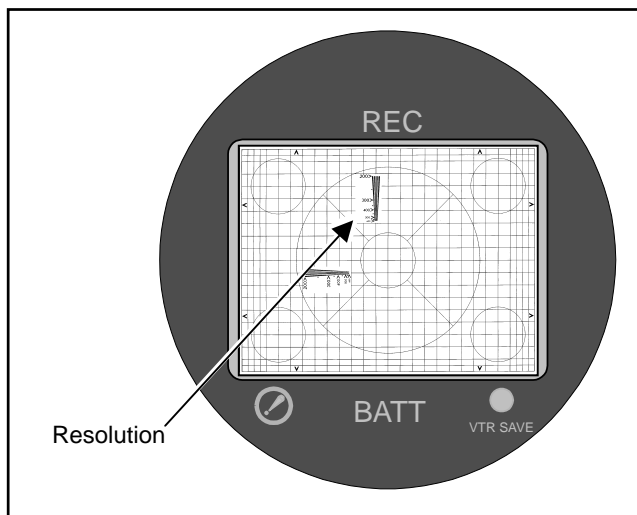
- Execute fine adjustment of following item.
 - 2-5. Rotation Adjustment
 - 2-6. Centering Adjustment
 - 2-7. Size Adjustment
 - 2-8. Linearity Adjustment



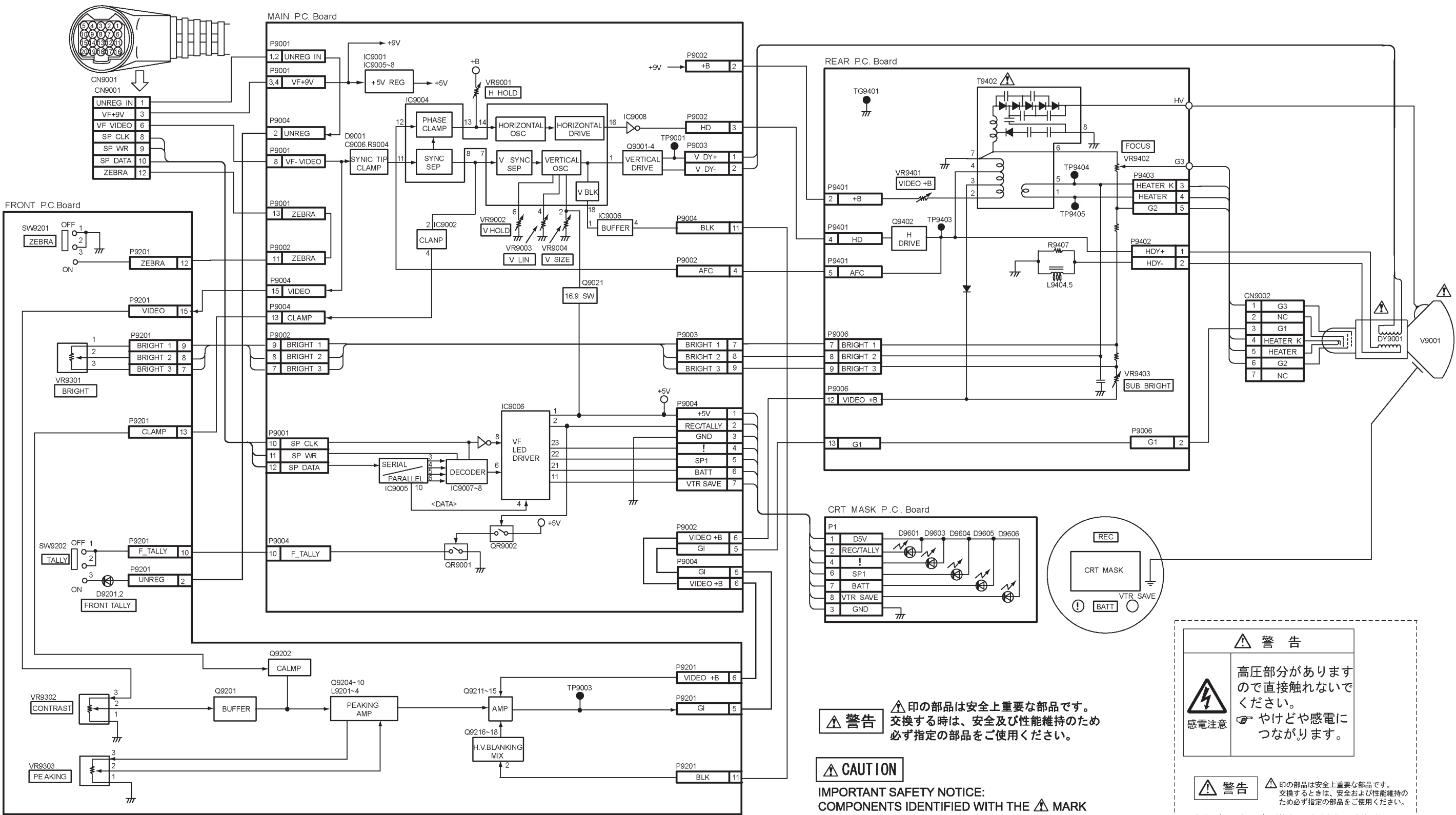
10. Focus Adjustment

Board	REAR
TP	EVF Screen
Adjust	VR9402 [FOCUS]
Input	Registration Chart
M.EQ	-----
Spec.	Optimized resolution

- Adjust **VR9402** so that Resolution is optimized.



EVF BLOCK DIAGRAM



警告 印の部品は安全上重要な部品です。交換する時は、安全及び性能維持のため必ず指定の部品をご使用ください。

CAUTION
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE ⚠ MARK
HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS
USE ONLY THE SAME TYPE.

警告

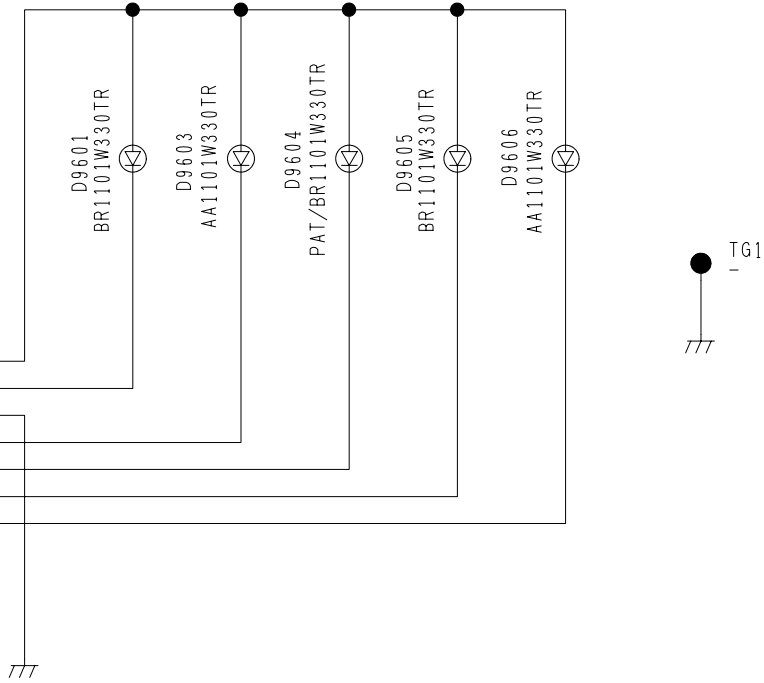
⚡ 感電注意

⚠ 警告

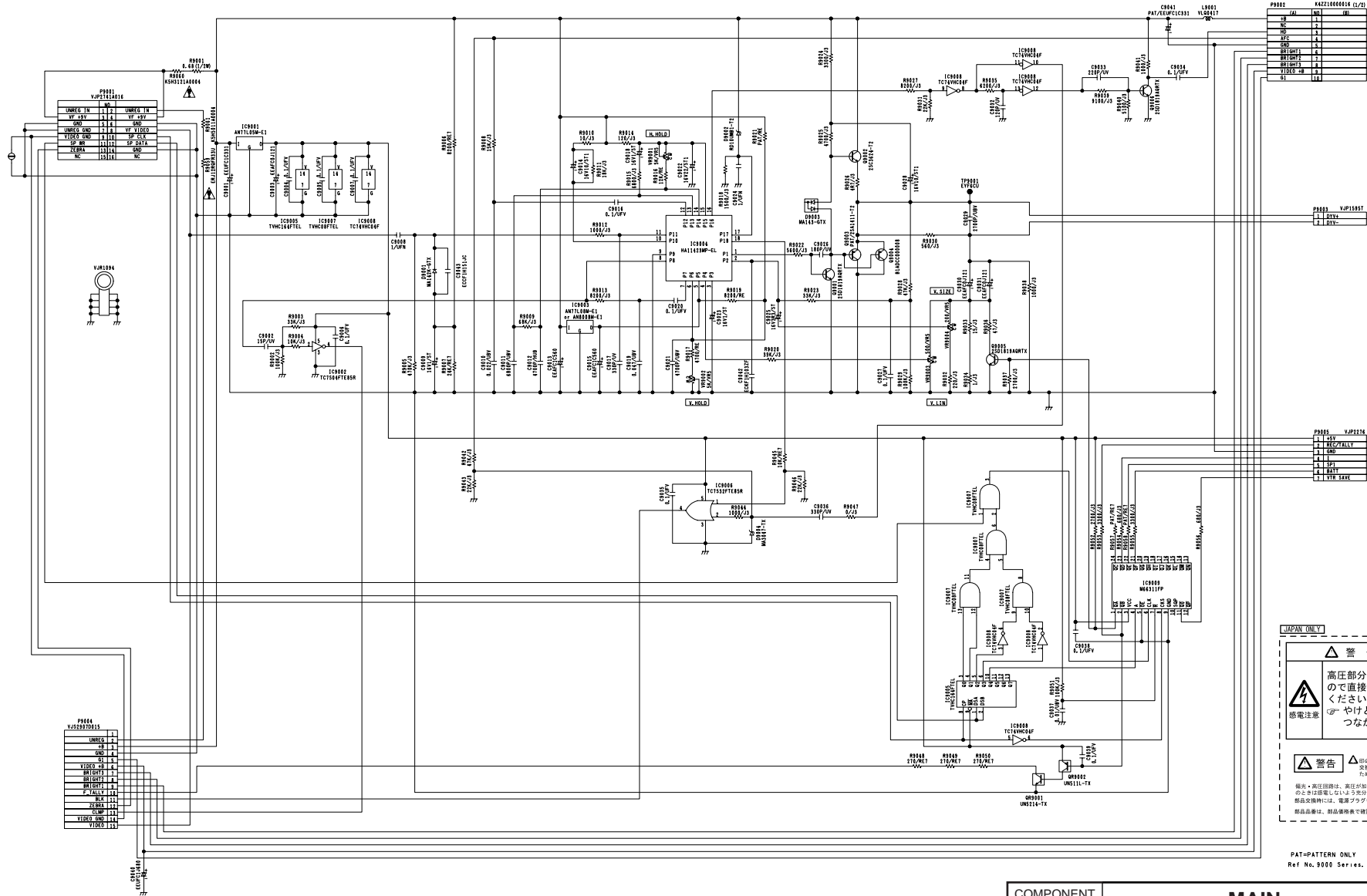
⚠ 印の部品は安全上重要な部品です。交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

偏光・高圧回路は、高圧が加わっておりますので点検、修理のときは感電しないよう充分ご注意ください。
部品交換時には、電源プラグをぬいてから行ってください。
部品品番は、部品価格表で確認の上交換ください。

P1 7P-SZN	
+5V	1
REC/TALLY	2
GND	3
!	4
SP1	5
BATT	6
VTR SAVE	7



COMPONENT NAME	CRTMASK		01/01
CIRCUIT BOARD NO.		DRAWING NO.	
VEP20869A		KR0Q44 (1/1)	
		SCM001	



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK△ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
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△印の部品は安全上重要な部品です。
交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

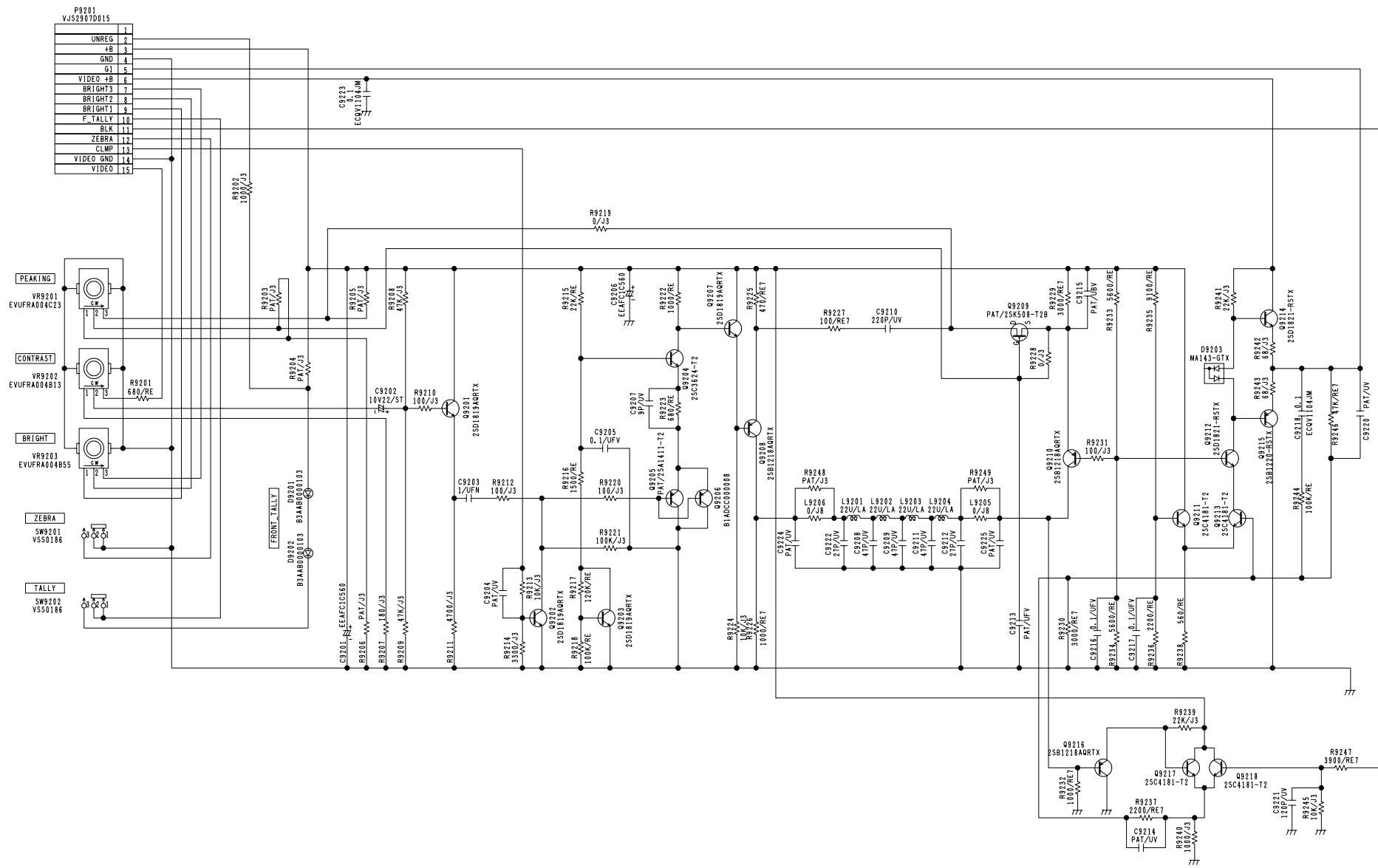
JAPAN ONLY

△ 警告
⚡
高圧部分がありますので直接触れないでください。
感電注意 ⚡ やけどや感電につながります。

△ 警告 △印の部品は安全上重要な部品です。交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。
備考・取付箇所は、裏面に記述しておりますので必ずご確認ください。修理の際は、電源プラグを抜いてから行ってください。部品交換時には、電源プラグを抜いてから行ってください。部品番号は、部品保持書で確認の上交換ください。

PAT-PATTERN ONLY
Ref No. 9000 Series.

COMPONENT NAME		MAIN		01/01
CIRCUIT BOARD NO.		DRAWING NO.		
VEP20866A		KR0Q41(1/1)		
		SCM002		



PAT=PATTERN ONLY
Ref No. 9200 Series.

COMPONENT NAME	FRONT	01/01
CIRCUIT BOARD NO.		DRAWING NO.
VEP20867A		KR0Q42(1/1)
		SCM003

P9401 PAT/TFC-B10Y-EY (1/2)		
(A)	NO.	(B)
	1	4B
	2	NC
	3	HD
	4	AFC
	5	GND
	6	BRIGHT1
	7	BRIGHT2
	8	BRIGHT3
	9	VIDEO +B
	10	G1

JAPAN ONLY

警告
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感電注意 やけどや感電につながります。

警告 △印の部品は安全上重要な部品です。交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。

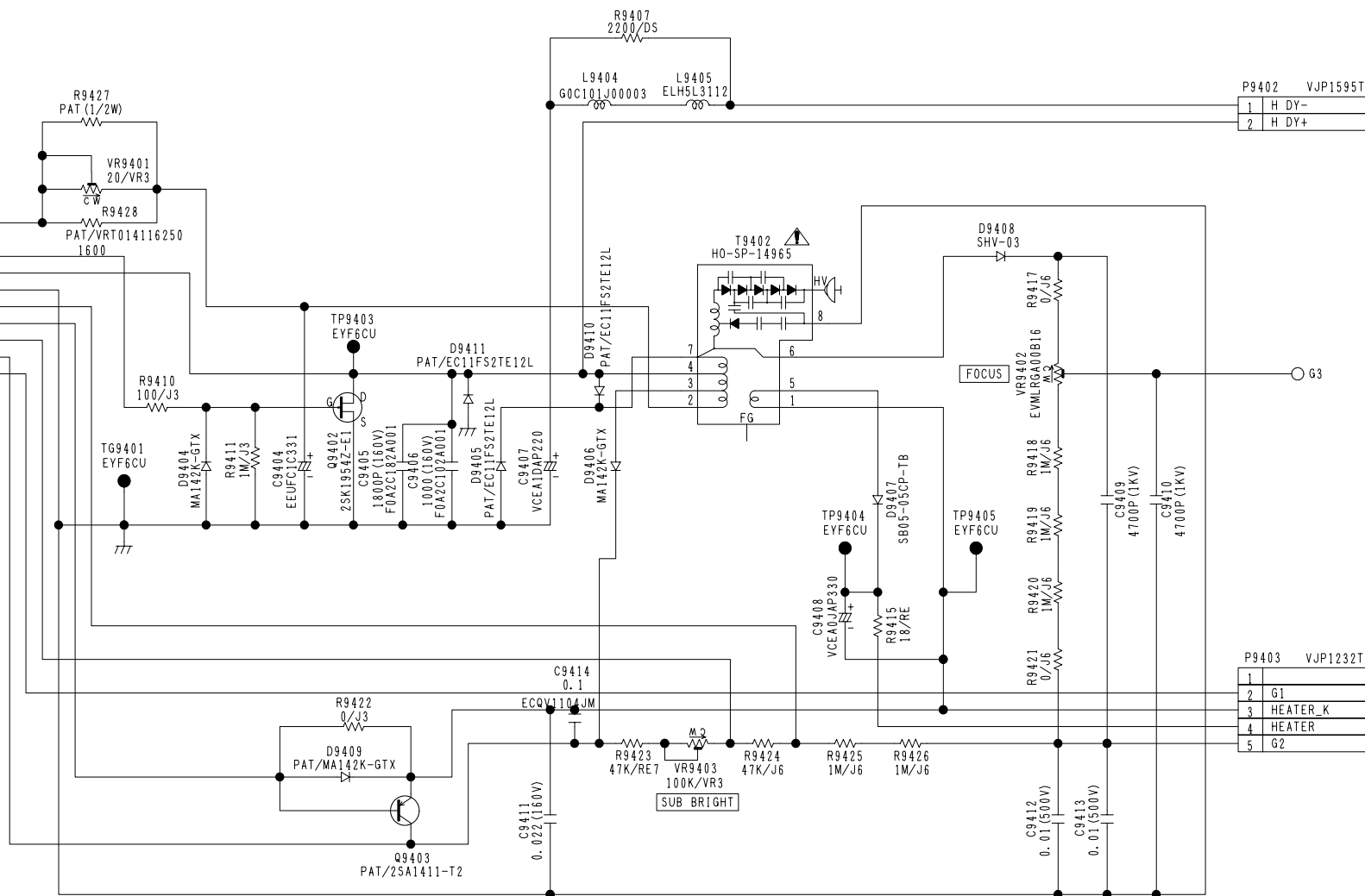
偏光・高圧回路は、高圧が関わっておりますので点検、修理のときは感電しないよう充分ご注意ください。
部品交換時には、電源プラグをぬいてから行ってください。
部品品番は、部品価格表で確認の上交換ください。

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警告

△印の部品は安全上重要な部品です。
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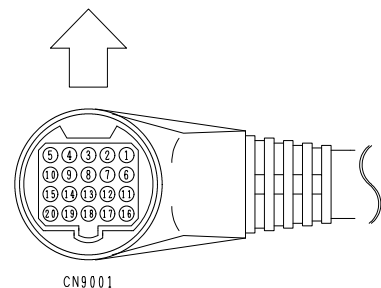


PAT=PATTERN ONLY
Ref No. 9400 Series.

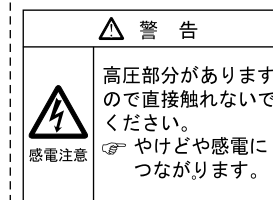
COMPONENT NAME	REAR	01/01
CIRCUIT BOARD NO.	DRAWING NO.	
VEP20868A	KR0Q43(1/1)	
	SCM004	

CN9001 K1EA209D0003

UNREG IN	1
UNREG IN	2
VF+9V	3
GND	4
GND	5
VF VIDEO	6
VIDEO GND	7
SP CLK	8
SP WR	9
SP DATA	10
UNREG GND	11
ZEBRA	12
ZOOM POSI	13
VF+9V	14
SP	15
SP	16
SP	17
SP	18
SP	19
GND	20



JAPAN ONLY



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部品交換時には、電源プラグを抜いてから行ってください。

部品品番は、部品価格表で確認の上交換ください。

IMPORTANT SAFETY NOTICE:

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警告 △印の部品は安全上重要な部品です。

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P9001 VJB2741A016
1 UNREG IN
2 UNREG IN
3 VF+9V
4 VF+9V
5 GND
6 GND
7 UNREG GND
8 VF VIDEO
9 VIDEO GND
10 SP CLK
11 SP WR
12 SP DATA
13 ZEBRA
14 S GND
15 NC
16 NC

MAIN
VJB20866

K4ZZ10000016 (1/2)
1 +B
2 NC
3 HD
4 AFC
5 GND
6 BRIGHT 1
7 BRIGHT 2
8 BRIGHT 3
9 VIDEO +B
10 G1

REAR
VJB20868

K4ZZ10000016 (1/2)
1 +B
2 NC
3 HD
4 AFC
5 GND
6 BRIGHT 1
7 BRIGHT 2
8 BRIGHT 3
9 VIDEO +B
10 G1

P9004 VJS2907D015
1 UNREG
2 +B
3 GND
4 G1
5 VIDEO +B
6 BRIGHT 3
7 BRIGHT 2
8 BRIGHT 1
9 F_TALLY
10 BLK
11 ZEBRA
12 CLMP
13 VIDEO GND
14 VIDEO

P9005 VJP2276
1 +5V
2 REC/TALLY
3 GND
4 !
5 SP1
6 BATT
7 VTR SAVE

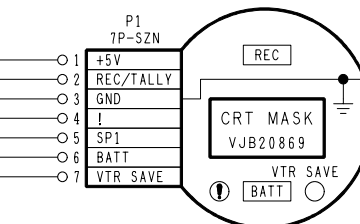
P9003 VJP1595T
1 V DY+
2 V DY-

P9402 VJP1595T
1 H DY-
2 H DY+

P9403 VJP1232T
1 G3
2 G1
3 HEATER K
4 HEATER
5 G2

FBT

P9201 VJS2907D015
1 UNREG
2 +B
3 GND
4 G1
5 VIDEO +B
6 BRIGHT 3
7 BRIGHT 2
8 BRIGHT 1
9 F_TALLY
10 BLK
11 ZEBRA
12 CLMP
13 VIDEO GND
14 VIDEO

FRONT
VJB20867

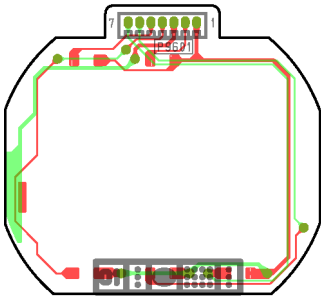
CN9002 VJS3451
1 G3
2 NC
3 G1
4 HEATER K
5 HEATER
6 G2
7 NC

DY9001
ELY15V114G-2V9001
M04KYS07WB

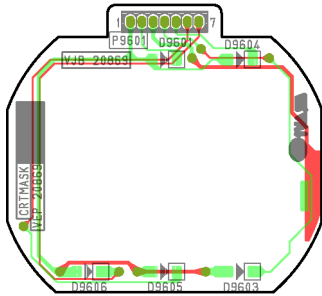
ANODE CAP

COMPONENT NAME	EVF INTERFACE	01/01
CIRCUIT BOARD NO.	DRAWING NO.	
VEP	KR9K37(1/1)	
	SCM005	

CRT MASK C.B.A. (VEP20869A)

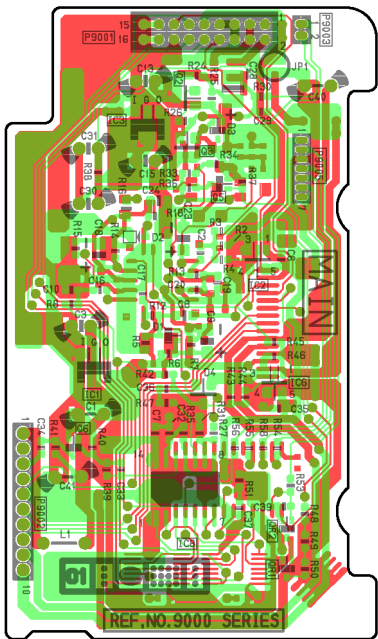


(FOIL SIDE)

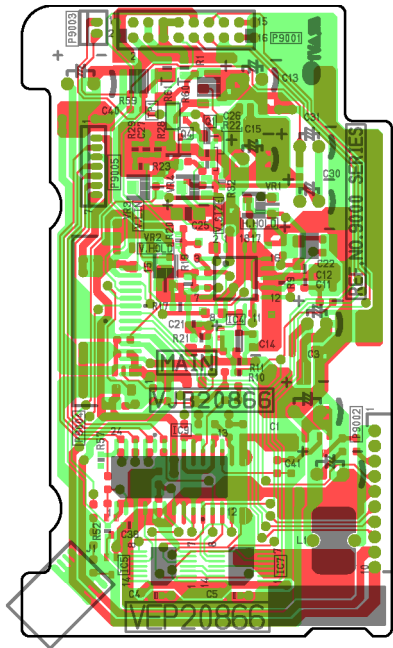


(COMPONENT SIDE)

MAIN C.B.A. (VEP20866A)

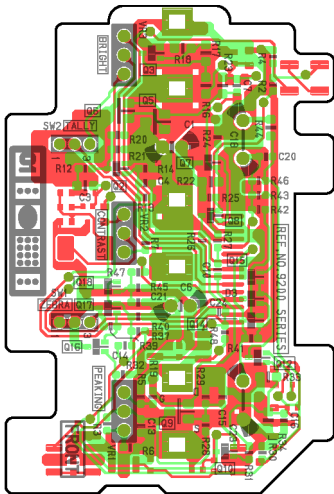


(FOIL SIDE)

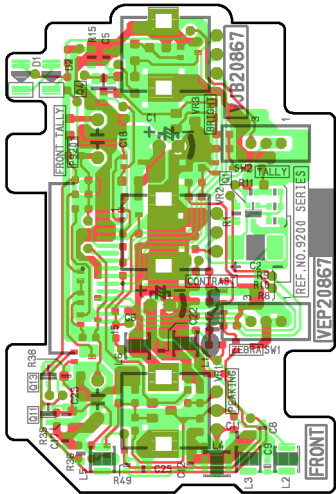


(COMPONENT SIDE)

FRONT C.B.A. (VEP20867A)

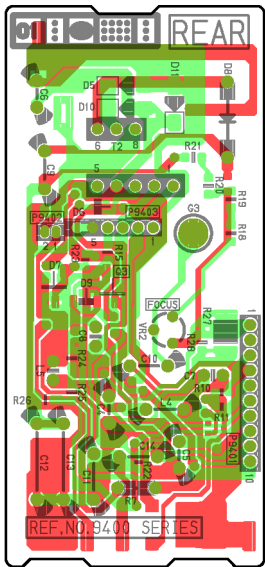


(FOIL SIDE)

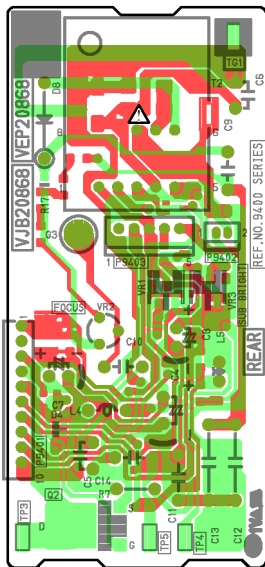


(COMPONENT SIDE)

REAR C.B.A. (VEP20868A)




(FOIL SIDE)



(COMPONENT SIDE)

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部品番号は、部品仕様書で確認の上交換ください。	